

# South African Medical Journal

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### THE RESTORATION OF HEARING IN CHRONIC MIDDLE EAR SUPPURATION

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Apart from the dangers of intracranial complications and the embarrassment of a foul-smelling aural discharge, chronic suppurative otitis media, left untreated, leads to progressive deafness which, if bilateral, may become so crippling as to cause social and economic insecurity in the adult and educational difficulties in the child. In the past all that could be offered these patients was the radical mastoid operation for the doubtful cure of the otorrhoea, and a 'crutch'—the hearing aid.

Perlman<sup>1</sup> showed that, when the ossicular chain is interrupted, the stapedius muscle acting unopposed tilts the foot plate of the stapes, thus damping down auditory stimuli which normally set in motion the peri-lymph fluid.

Taylor and Bateman<sup>2</sup> divided the stapedius tendon in a case of chronic suppurative otitis media where the long process of the incus had been destroyed by disease, and produced 15-20 decibels improvement in hearing for the speech frequencies. This I consider to be the greatest advance in operative otology since the fenestration operation was made a practical proposition.

Stapedius tenotomy is a procedure by which the incus, though diseased yet still functioning, can be removed without hearing loss dropping to an unserviceable level, and can, in cases where the ossicular chain has already been interrupted, restore practical hearing.

This valuable procedure enables the surgeon to carry out a radical clearance of middle ear pathology and at the same time leave a functioning ear.

McGuckin<sup>3</sup> suggests that, in old-standing lesions, surgery should be exciseive rather than the surgery of drainage. He has observed many cases where the radical mastoid operation has failed to cure the suppuration, where granulations have persisted, and where, in a few cases, involvement of the promontory by osteitis has led to labyrinthitis. For many years I have held the view that curettage of the eustachian orifice is a cause of osteitis in this region and frequently a source of persistent discharge after radical mastoidectomy. Curettage may also be the cause of persistent granulations in the tympanum and hypo tympanum as suggested by Popper<sup>4</sup>, who condemns anything but the

minimum disturbance to the muco-periosteum in this region.

In the mastoid process, antrum and attic, surgery should be radical or exciseive, and meticulous care should be taken to remove all diseased and doubtful tissue. The curette, if used at all, should be applied with extreme caution in the region of the windows, promontory and eustachian orifice. If the incus is removed the head of the malleus with the tensor tympani muscle should also be sacrificed.

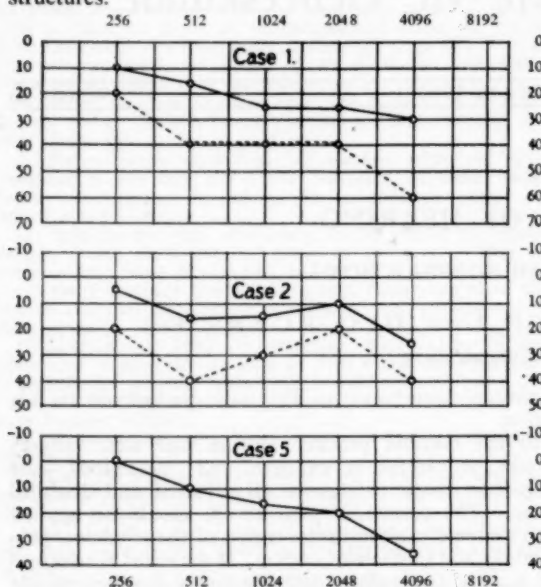
In the early stages the pathology is limited to the mucosa of the tympanum, additus and antrum. Such cases usually respond to conservative treatment, but in others there will remain a persistent, foul-smelling discharge in spite of treatment. As the condition progresses, granulations may be seen on the edge of a marginal perforation indicating underlying bone necrosis. Tumarkin<sup>5</sup> stresses the urgency of early operative treatment in all cases of persistent, foul-smelling discharge (except those cases due to infection via the eustachian tube) which do not respond to aural hygiene, or which respond only to recur. Watkins-Thomas, in the discussion on Tumarkin's paper, was of the opinion that, unless the incus was absolutely loose and lying in a mass of granulations so that it came out on the end of the sucker, it should be left intact. This view I strongly oppose. To preserve a diseased, or dislocated incus, will prevent resolution and maintain the suppurative process. What, then, is the procedure to be adopted in these cases?

All cases of otorrhoea should be thoroughly investigated. The investigation should include hearing tests made with the voice, tuning forks and audiometer. X-rays should be taken of the mastoids. If this investigation indicates that the pathology is limited to the mucosa, intense aural hygiene should be instituted, if possible in hospital.

In those cases which fail to respond to conservative treatment, and where investigation suggests underlying bone pathology, operative treatment is carried out without further delay.

With regard to the surgical approach, my experience with the endaural trans-tympanic fenestration operation

has led me to use this route in the chronic ear on account of the easy access it offers to intra-tympanic structures.



Case 1. Air conduction: Pre-operative ..... 25 April;  
Air conduction: Post-operative ..... 31 August.  
Case 2. Air conduction: Pre-operative ..... 1 May;  
Air conduction: Post-operative ..... 24 August.  
Case 5. Air conduction: Post-operative ..... 15 September.

In the majority of cases of chronic middle ear suppuration, the mastoid process is sclerotic. There is no point, therefore, in using the mastoid corridor when the outer attic wall affords direct access to the site of pathology; but should it be found necessary, the whole of the mastoid cell system can be adequately dealt with by this route. In all cases the attic is first explored via the meatal corridor. Care should be taken not to damage the delicately poised incus, which is inspected and its fate decided. Should there be disease of this structure, or should it be accidentally dislocated, it is removed and with it the head of the malleus and the tensor tympani muscle. If the incus is removed the stapedius tendon is divided close to the pyramid.

In those cases where the X-ray films show a cellular mastoid, or infection in the mastoid process, or where necrosis is found at operation extending into the mastoid process, attico-mastoidectomy is performed, and in this operation the fate of the incus is also decided as above.

#### THE OPERATIVE TECHNIQUE

As in the trans-tympanic fenestration operation,<sup>6</sup> the first incision is a circumferential incision just medial to the junction of the cartilaginous and bony meatus. When the tragus is retracted forwards a prominent ridge is formed by the tympanic plate. This is the landmark for commencing the incision which traverses the roof of the meatus from 9 o'clock to 3 o'clock. Next the skin which lies between the anterior convexity of the helix and tragus, is infiltrated with a novocain-adrenaline solution. The second incision is now made between these

structures and along the roof of the meatus to join the first incision. The periosteum is elevated and a mastoid retractor inserted.

The first time I used the trans-tympanic route with the endaural incision, I commenced with the incision between the anterior convexity of the helix and tragus. Owing to the distortion due to the local anaesthetic and tremendous 'overhang' of the superior meatal wall in this case, however, I was unable to make the transverse incision along the tympanic plate and roof of the bony meatus. It then occurred to me that a circumferential incision must be made first. When the retractor is ultimately inserted, the medial edge of this incision stands out with such clarity as to simplify the fashioning and elevation of the meatal flap.

The third incision is made from the notch of Rivinus directly lateral to meet the circumferential incision.

The skin lining the roof of the bony meatus and its posterior wall is now elevated and turned downwards on to the floor. The tympanic membrane is detached from the annulus in continuity with the meatal skin as in the fenestration operation.

This flap differs from that described by Popper, where the skin is incised close to the annulus and the flap hinged at the meatal orifice. The flap described above is similar to that of Tumarkin which hinges on the floor of the meatus.

There are three reasons for creating a flap which hinges at the floor:—

1. It is easier and safer to detach the tympanic membrane.
2. The flap is not traumatized by the retractor as in the Popper flap.
3. The flap ultimately covers the facial ridge and additus—a region prone to granulations.

With a 2.5 mm. steel cutting burr, the meatus is enlarged by removing the roof in order to get better access to the annulus. Then, commencing at the annulus, the outer attic wall is removed from below upwards, care being taken not to touch the incus during this procedure. The remaining part of the meatal roof is now removed up to the tegmen.

When the whole of the incus and the head of the malleus are exposed, these structures are minutely examined for evidence of erosion. Where erosion has occurred the incus and the head of the malleus are removed and the stapedius tendon divided.

The hypo-tympanum and the round and oval window regions are inspected and granulations, if found to be present, are removed.

In cases where the head of the malleus is removed the processus cochleariformis is fractured outwards with a No. 0000 Lempert curette and the tensor tympani tendon with its muscle is evulsed.

The antrum should always be opened and the bony cortex overlying is removed from within outwards.

All 'overhangs' are taken down and the operative field irrigated with normal saline and insufflated with sulphanilamide-penicillin powder. The tympanic membrane is replaced and the skin flap allowed to fall in position.

Calgitex gauze is packed into the attic and antrum, the skin incision between the helix and tragus is sutured and a piece of rubber sponge, cut to the required size is placed in the meatus. The sponge and packing are removed on the seventh day.

#### SUMMARY OF CASES

Case 1. B.G., aged 13 years, complained of pain and discharge from the right ear for six years. The patient has attended the Out-Patient Department regularly, with no improvement.

Right ear, C.S.O.M. with granulations in attic. X-ray of mastoids shows large cholesteatoma R. Very deaf in this ear. 29 April 1949: Trans-tympanic attico-mastoidectomy performed. Large cholesteatoma found extending to the mastoid tip. Incus gone. Head of malleus removed and stapedius tendon divided.

19 May 1949: Some granulations removed from attic. Hearing well.

7 July 1949: Recurrence of granulations, ear discharging.

14 July: Granulations removed from antral region under general anaesthetic. Hearing well.

25 August: Ear dry. Hears conversational voice at 16 ft. + with left ear blocked.

10 October: Dry.

Case 2. R.G., aged 10 years, complained of discharge from the left ear since infancy. Deaf in this ear. Intermittent attacks of earache. Left ear attic perforation involving the tympanic ring. Pus + +. X-ray of mastoids shows rounded, well-defined translucency suggesting cholesteatoma (L).

3 May 1949: Trans-tympanic attico-antrostomy performed. Incus missing. No cholesteatoma, head of malleus removed, stapedius tendon divided.

19 May: Some granulations on roof of meatus removed by curette. Hearing much improved.

14 June: Moist. Hears conversational voice at 12 ft. +.

4 July: Moist.

18 July: Dry, hearing good.

26 August: Dry, hearing almost normal.

10 October: Dry.

Case 3. M. van S., aged 11 years, had a running ear since infancy. Attic perforation discharging. Hearing conversational voice at 12 ft.

X-ray: Right mastoid sclerotic and destruction of air cells suggestive of mastoiditis.

17 May 1949: trans-tympanic attico-antrostomy performed. Incus healthy therefore not removed.

27 June: Ear dry, hears conversational voice at 16 ft. + with left ear blocked.

Case 4. P.S., aged seven years, had otorrhoea both ears for five years. Intermittent pain. Left ear, large marginal perforations with granulations + + and pus. Very deaf in both ears. Not very co-operative and possibly due to severe deafness since infancy.

15 May 1949: Transtympanic attico-antrostomy. Attic full of granulations; incus carious and removed. Head of malleus amputated and stapedius tendon divided.

21 May: Hearing improved.

29 May: Moist.

11 November: Has been dry for several months.

Case 5. Mrs. F.H. complained of earache and discharge for one month. Previous cortical mastoidectomy six years ago. X-ray of the mastoids shows infected tip cells. Hearing fair.

22 July 1949: Right mastoid explored through old scar and tip cells opened. Wound closed and transtympanic attico-antrostomy performed. Granulations in attic, necrosis of short process of incus. Incus therefore removed and stapedius tendon divided.

12 August: Moist, hearing improved. Conversational voice at 16 ft. +.

19 August: Dry.

10 October: Dry.

Case 6. H.L. complained of bilateral otorrhoea and deafness since 1918. Right radical mastoidectomy (1922). Left ear attic disease granulations + +, pus + +. Hearing in right ear useless and partly deaf in left ear.

X-ray: Left mastoid sclerotic with enlargement of the antrum suggestive of chronic infection.

9 August 1949: Transtympanic attico-antrostomy performed. No incus present, no head of malleus or capitulum of stapes or crura.

17 August: Clean, hearing *in statu quo*.

25 August: Moist.

15 September: Dry.

10 October: Dry.

#### COMMENTS

The above are the summaries of six consecutive case histories. In every case the suppuration was cured and the hearing improved or maintained at the pre-operative level. Case 3 is of the type where the suppuration was limited to the attic with a healthy incus. A simple drainage operation of the attic and antrum was performed. The mastoid was untouched as was the incus. Recovery was rapid, the ear being healed and dry in five weeks with improvement in the hearing.

In Cases 1 and 2 the incus had already necrosed with a consequent drop in hearing acuity to an unserviceable level. In Case 1 a large cholesteatoma was found extending almost to the mastoid tip. No difficulty was experienced in dealing with it through the meatal corridors. Granulations were troublesome, but the cavity healed quickly after these were removed under general anaesthesia. In both cases, stapedius tenotomy was performed which restored hearing to a practical level. In Case 2 the post-operative hearing level is such that it is hard to believe that there has been interruption in the ossicular chain. Clinically, the hearing is normal in this ear.

It was difficult in Case 4 to estimate just how much hearing was present before operation, as the child was unco-operative and unreliable. The mother, however, is very impressed with the improvement in the child's hearing, for conversational voice can now be heard at a distance of 12 feet.

Necrosis of the short process of the incus was present in Case 5, but the incus was still functioning, i.e. the ossicular chain was intact and hearing, although impaired, was still useful. Many authorities will condemn removal of the incus in this case, but it would have been only a question of time before it would have ceased to function anyway, and during this time the suppuration would have been maintained. Removal of the incus and division of the stapedius tendon has in this case improved the hearing and produced a dry and painless ear.

Case 6 is interesting on account of the amount of hearing present before operation in spite of the absence of the incus, capitulum and crura of the stapes. The obvious explanation for this is that, when necrosis of the capitulum of the stapes occurred, the stapedius tendon became detached leaving the foot plate mobile in the oval window. In other words, nature had performed a stapedius tenotomy. In this case, no improvement of hearing could be expected.

This preliminary report on a very small number of cases has convinced me of the utmost value of stapedius tenotomy, for in every case where this procedure was performed, the hearing has been restored to a practical level.

#### SUMMARY

1. The treatment of chronic middle ear suppuration is discussed with special reference to the restoration of hearing by stapedius tenotomy.
2. A trans-tympanic mastoid operation is described in detail.
3. The histories of six consecutive cases are given and their results discussed.

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# South African Medical Journal

## Suid-Afrikaanse Tydskrif vir Geneeskunde

### VAN DIE REDAKSIE

#### DIE REGSONKOSTE VAN TUG-ONDERSOEKE DEUR DIE GENEESKUNDIGE RAAD

UITBREIDING VAN DIE ATLAS-POLIS VIR LEDE VAN DIE VERENIGING

Die vorm van die polis wat die Atlas-versekerings-maatskappy gedurende die afgelope kwarteeu aan lede van die Vereniging uitgereik het, is oorspronklik na raadpleging tussen die Mediese Vereniging en die Atlas-versekeringsmaatskappy opgestel. Dit is van tyd tot tyd gewysig om veranderde toestande die hoof te bied. Tot dusver het die polis die versekerde teen eise om skade-vergoeding deur pasiënte sowel as teen die regsonkoste wat deur die versekerde in verband met sodanige aangegaan is, gedek.

Voorheen het die polis nie die uitgawe gedek wat 'n versekerde persoon mag aangaan in verband met sake wat deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad verhoor word nie, maar reëlins is met die Atlas-maatskappy getref dat vanaf 1 Januarie 1950 alle lede se versekeringspolisse teen nalatigheids-vervolging outomaties uitgebrei word om regsonkoste wat deur lede by sodanige verhoor aangegaan word en appèlle na die Hooggeregshof wat daaruit voortspruit, onderworpe aan sekere perke en voorwaardes te dek.

Lede sal verheug wees om te verneem dat die Atlas-maatskappy ingestem het tot die uitbreiding van die bestek van die polis sonder om enige ekstra premie te vra. Hulle het egter die voorbehoud neergelê dat indien die uitbreiding oor 'n redelike lang tydperk dunder blyk as wat verwag is, hulle moontlik 'n ekstra premie mag vra.

Ons verneem dat die Atlas-maatskappy aan elke lid wat 'n polis teen nalatigheids-vervolging besit, 'n endossement stuur waarin die besonderhede van die uitbreiding uiteengesit word. Hierdie endossement moet by die polis gehou word.

Die nuwe dekking tree in werking vanaf die tyd dat die versekerde persoon 'n dagvaarding ontvang om voor die Geneeskundige en Tandheelkundige Raad of sy Tugkomitee te verskyn (mits die oorsaak van die klage op of na 1 Januarie 1950 ontstaan het en die polis op daardie tydstip van krag was). Regsonkoste wat 'n lid in verband met die ondersoek voor die uitreiking van 'n dagvaarding mag aangaan word nie gedek nie maar regsonkoste wat aangegaan is vanaf die tyd dat die dag-

### EDITORIAL

#### THE LEGAL COSTS OF MEDICAL COUNCIL DISCIPLINARY INQUIRIES

EXTENSIONS OF THE ATLAS POLICY FOR ASSOCIATION MEMBERS

The form of policy which the Atlas Assurance Company has been issuing to Association members over the past quarter of a century was originally drawn up in consultation between the Medical Association and the Atlas Assurance Company. It has been amended from time to time to meet changing conditions. The policy has hitherto covered the insured against claims for damages made by patients as well as legal costs incurred by the insured in connection with such claims.

The policy has not previously covered the expenses which an insured person may incur in connection with cases heard by the South African Medical and Dental Council, but it was arranged with the Atlas Company that from 1 January 1950 all members' 'malpraxis' policies were automatically extended to cover legal costs incurred by members at such hearings and at Supreme Court appeals arising therefrom, subject to certain limits and conditions.

Members will be gratified to know that the Atlas Company has agreed to this extension of the scope of the policy without charging any extra premium. They have, however, made the reservation that if, over a reasonably long period, the extension proves more costly than is anticipated, they may have to charge an extra premium.

We understand that the Atlas Company will be sending each member who holds a 'malpraxis' policy an endorsement setting out the details of the extension. This endorsement should be kept with the policy.

The new cover operates from the time that the insured person receives a summons to appear before the Medical and Dental Council or its Disciplinary Committee (provided the cause of the complaint arose on or after 1 January 1950 and that the policy was in force at the time). Legal charges which a member might have to incur in connection with the inquiry before the issue of summons are not covered, but legal charges incurred from the time that summons is issued

vaarding uitgereik is tot die afloop van die verhoor word binne die volgende perke gedek:

	Verhoor van hoogstens een dag.	Verhoor of ver- hore van meer as een dag.
1. Waar die versekerde persoon deur slegs 'n prokureur verteenwoordig word ...	£35	£50
2. Waar die versekerde persoon deur 'n prokureur en 'n advokaat verteenwoordig word ...	£60	£75

By die bespreking van hierdie perke met die Atlas-maatskappy het die Vereniging besef dat dit onwenslik is dat die uitbreiding aan die versekerde persoon *carte blanche* gee in verband met die skaal van indiensneming by regsverteenvoording. Vir eenvoudige sake wat doeltreffend deur 'n prokureur behartig kan word, is 'n laer perk (£35) vasgestel as vir sake wat belangrik of moeilik genoeg is om die dienste van 'n advokaat te regverdig, en die hoër perk van £60 van toepassing is. Gewoonlik duur verhore slegs een dag, maar om vir langer verrigtings voorsiening te maak het die Atlas-maatskappy die hoër perk van £50 (slegs prokureur) en £75 (prokureur en advokaat) vasgestel.

Sodra die dagvaarding ontvang word, vereis die Atlas-maatskappy dat die versekerde persoon die volle besonderhede van die dagvaarding en van die gebeurtenisse wat tot die uitreiking daarvan gelei het, verstrek. Wanneer hy dit doen, moet die versekerde persoon ook meld of hy meen dat die dienste van 'n prokureur toereikend sal wees en of hy verlang dat 'n advokaat ook geraadpleeg word. Waarskynlik sal die versekerde geneesheer en die Atlas-maatskappy dit gewoonlik eens wees oor die soort regsverteenvoording wat die saak vereis, maar indien daar verskil van mening oor die saak is, d.w.s. indien die geneesheer 'n advokaat verlang terwyl die Maatskappy meen dat die saak nie die dienste van 'n advokaat vereis nie, word van die geneesheer verwag dat hy die saak na die President van sy Tak verwys wie se beslissing daaroor, skriftelik aan die Atlas-maatskappy meegedeel, aanvaar sal word.

Die uitgawe waarvoor die Atlas-maatskappy verantwoordelikheid aanvaar is alleen regsonkoste en geen reis- en huisvestingsonkoste wat in verband staan met 'n versekerde persoon se verskyning voor die Raad nie.

Die uitbreiding strek verder as die bestryding van regsonkoste in verband met verhore deur die Geneeskundige en Tandheelkundige Raad want dit verleen ook skadeloosstelling ten opsigte van regsonkoste wat deur die geneesheer aangegaan is in verband met appèlle na die Hooggeregshof teen bevindings van die Geneeskundige en Tandheelkundige Raad. Die Vereniging het ingestem dat hierdie skadeloosstelling alleen verleen word wanneer die lid se Tak-president bevestig dat dit 'n geskikte saak vir die Hooggeregshof is. Indien die President daaroor twyfel, kan 'n advokaat se mening ingewin word en daarvoor sal ingevolge die uitbreiding van die polis betaal word.

Die perke van regsonkoste in verband met hierdie appèlle is soos volg:

- i. Verhoor van hoogstens een dag £100
- ii. Verhoor of verhore van meer as een dag £175.

until the conclusion of the hearing are covered, subject to the following limits:

	Hearing not Exceeding One Day.	Hearing or Hearings Exceeding One Day.
1. Where the insured person is represented by an attorney only ...	£35	£50
2. Where the insured person is represented by attorney and counsel...	£60	£75

In discussing these limits with the Atlas Company the Association realized it was undesirable that the extension should give an insured person *carte blanche* for the scale of legal representation to be employed. For simple cases which could be dealt with adequately by an attorney, therefore, a lower limit (£35) was fixed than for cases sufficiently important or difficult to require the employment of counsel, where the higher limit of £60 applies. Usually hearings only last one day, but to provide for more lengthy proceedings the Atlas Company has allocated the higher limits of £50 (attorney only) and £75 (attorney and counsel).

As soon as summons is received the Atlas Company requires the insured person to give them full particulars of the summons and of the events which led to its issue. In doing so the insured person should state whether he considers that the services of an attorney would suffice or whether he wishes counsel also to be consulted. It is probable that the insured practitioner and the Atlas Company will generally be in agreement about the class of legal representation a case requires, but should there be disagreement on the point, i.e. should the practitioner wish for counsel whilst the Company considers the case does not require counsel's services, then the doctor is called upon to refer the matter to the President of his Branch whose ruling on the point, conveyed to the Atlas Company in writing, will be accepted.

The expenses for which the Atlas Company assumes liability are legal expenses only and not travelling and accommodation expenses incidental to an insured person's appearance before the Council.

The extension goes further than meeting legal costs relating to Medical and Dental Council hearings for, in addition, it provides an indemnity in respect of legal expenses incurred by the practitioner at appeals to the Supreme Court from findings of the Medical and Dental Council. The Association has agreed that this indemnity should only be provided when the member's Branch President confirms that the case is a proper one to go to the Supreme Court. If the President were doubtful upon the point, counsel's opinion could be taken and this would be paid for under the extension of the policy. The limits for legal expenses at these appeals are as follows:

- i. Hearing not exceeding one day, £100.
- ii. Hearing or hearings exceeding one day, £175.

Indien die lid se appèl slaag en die Hooggeregshof ken koste aan hom toe, word hierdie koste afgetrek van sy totale regsonkoste in verband met slegs die appèl voordat die bedrag deur die Atlas-maatskappy betaalbaar bereken is, m.a.w. indien die lid se appèl £300 kos en sy appèl slaag en die Hooggeregshof ken £250 koste aan hom toe, is net £50 deur die Atlas-maatskappy betaalbaar.

Alhoewel lede natuurlik nie verwag om van hierdie nuwe uitbreiding gebruik te maak nie, meen ons dat hulle sal instem dat dit 'n verstandige bepaling is en dat ons dank aan die Atlas-maatskappy verskuldig is vir hulle geredelike saamwerking in 'n saak wat in die afgelope jare toenemende kommer aan die mediese beroep besorg het.

If the member were successful in his appeal and the Supreme Court awarded him costs, these costs would be deducted from his total legal expenses in connection with the appeal only, before the amount payable by the Atlas Company was computed; e.g., if the member's appeal costs were £300 and he were successful in his appeal and was awarded £250 costs by the Supreme Court, the Atlas Company would only be liable for £50.

Although members will naturally not expect to have occasion to make use of this new extension, we think they will agree that it is a wise provision and that our thanks are due to the Atlas Company for their ready co-operation in a matter which has given increasing concern to the medical profession in recent years.

## A STANDARD OPERATION FOR HYPERTENSION

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The world over doctors and sufferers are asking the same question: 'What is the status of surgery in regard to the menace of high blood pressure?' Few will deny its value. Crile, Adson, Craig, Grimson, Lord, Peet, Smithwick and other American surgeons have established operation in the therapeutics of hypertension. Palmer<sup>1</sup> credits to surgery twice as much as medicine can hope to achieve. Fishberg,<sup>2</sup> after a critical analysis, concludes that 4% of sufferers from essential hypertension may be benefited by surgery. It would clarify the matter if physicians in their assessment of the results of surgery in high blood pressure would detail treatment and analyse the results in series of cases handled conservatively, so that comparison could follow. There are vastly more cases unoperated than operated and the numerous publications by physicians examining surgical results lose much of their value because medical cases are not reviewed.

Smithwick<sup>3</sup> has pointed out the same shortcoming, stating that surgical results are open to as much criticism as anyone wishes to level at them, as there are no comparable series of medical results published.

Accepting the premise that operation is an accepted part of the treatment of essential hypertension, what operation should be done? It has been said that few surgeons complete their careers having resisted the temptation to describe a new operation for hernia. Matters are not so bad anent hypertension, yet there are many operations used for this condition also. The master will gain results by whichever means he chooses. The beginner requires guidance. Wherever surgery is practised, there are eager devotees at that stage of their lives when they wish to know which of many operations to choose and how to carry it out.

This article is an elaboration of one which appeared in the *British Journal of Surgery* in January 1948, and is especially devoted to technique.

### WHICH OPERATION SHOULD BE DONE IN ESSENTIAL HYPERTENSION?

This depends on many factors such as the age, the severity of the symptoms, the condition of the heart, the pulse rate, etc. These conditions affect the extent of the procedure. It is necessary that the operation chosen should be one which the general surgeon can perform. The expert may execute an excellent procedure through a small exposure which is quite impractical for one not trained or equipped to work through telescopic openings. It may be postulated therefore that exposure must be generous.

The operation of choice must be in the best interests of the patient, i.e. the risk to life should be as low as possible and the suffering entailed by surgery as little as may be. It is easier to carry out the neurectomy by a generous exposure where the chest is opened widely, than by a retropleural procedure. Whereas the trans-thoracic exposure has its indications, these are but few, whilst the death rate is higher and the physical discomfort greater than that following an extrapleural approach.

The second postulate then is that the standard operation should be extrapleural. The extent of the operation is hotly contested. All gradations have been advised from the total sympathectomy of Grimson to a mere division of the splanchnic nerves. It is established that total sympathetic denervation of the splanchnic bed is impossible as vasoconstrictor fibres may reach the abdomen by such unusual routes as the phrenic nerve, the aortic plexus, etc. If total splanchnicectomy is impossible, what should be the extent of the ablation to ensure extensive vasodilatation together with a sufficiently wide gap to stave off regeneration? As the splanchnic nerves arise from the lower 8 or 9 thoracic ganglia, theoretically resection should cover this extent.

To achieve this objective entails either a transthoracic or an extensive posterior approach. The former has already been dismissed as the standard procedure. Of the latter it may be said that the difficulties of the operation are much increased, the procedure is more severe and as Hinton and Lord succinctly state, a smaller percentage of patients subjected to this procedure consider it worth while, than the percentage approving a less extensive neurectomy.

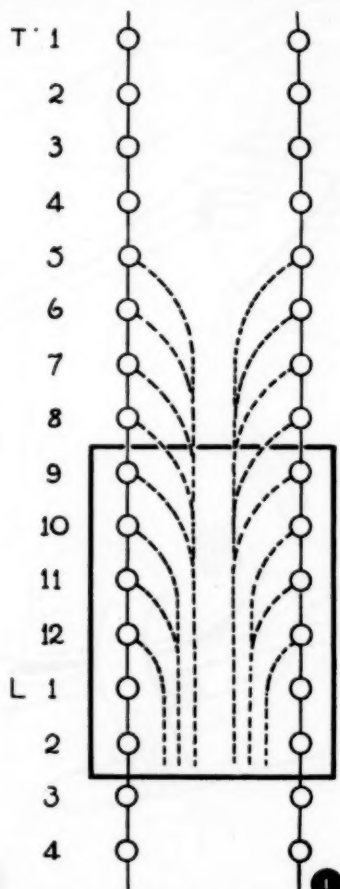


Fig. 1. The thick black lines demarcate the nerve tissue removed in the Smithwick operation. The splanchnic system is shown by the dotted line.

Finally, can more be expected from removal of ganglia extending as high as the fourth thoracic than from excisions merely from the eighth or ninth thoracic, including the proportionate extent of the splanchnics in both cases? Smithwick is of opinion that no greater fall of blood pressure will ensue. It is difficult to conceive that in the less extensive operation, the upper splanchnic rootlets are going to make connection with the sub-diaphragmatic coeliac ganglion. From the writer's experience of the more extensive neurectomy,

he finds himself in entire agreement with Hinton and Lord who counsel reservation of the procedure for certain cases.

The third postulate follows that the standard splanchnicectomy is not total.

*The standardised operation for essential hypertension is the lumbo-dorsal splanchnicectomy as advised by Smithwick.* The advantages of this procedure are as follows:

The operation mortality is 2% and the case mortality 4%.

The lower limbs are desympathectomized.

The procedure is well tolerated even by poor risk patients.

#### THE STANDARD OPERATION

The operation to be described is the one advised for the average surgeon who treats essential hypertension. In certain cases and for special indications more extensive neurectomy is in the patient's interest.

This operation is basically the Smithwick operation and should be so called. Certain departures from the originator's technique have been developed in the light of experience. Male patients must be informed that following these operations they will probably be sterile, though potency is not usually impaired.

1. Prepare the entire back. If hairy it should be shaved. Otherwise preparation consists merely of very thorough washing with soap and water. No antiseptic and no drapes are applied.

2. No breakfast.

3. Nembutal gr. 3 at 9 p.m. 1½ gr. two hours before operation.

4. Morphine gr. 1/6, hyosine gr. 1/200, one hour before operation.

5. An antero-posterior X-ray view of the lower thorax to show the twelfth rib to accompany patient to theatre.

6. Penicillin 20,000 units is given by injection before the patient goes to theatre and is continued 3-hourly for two or more days as indicated.

The only difference at the second operation is routine blood transfusion on the table.

**Anaesthesia.** Gas-oxygen-ether are given by endotracheal administration. It is absolutely essential that the anaesthetist is able to expand the lung should the pleura be opened. Unless this degree of skill is assured, the operation should not be done, as it may well cost the life of the patient.

**Position on the Table.** Proper position is most important to minimize the difficulties of the deep dissection.

1. The patient lies prone with the arms extended above the head.

2. The lower abdomen is unimpeded in respiration by properly arranged narrow firm pillows strapped to the table (Fig. 2).

3. Side pieces are applied to the far side of the table.

4. The table must admit of lateral tilt and of being 'broken' in the middle (Fig. 3).

The final position is that the patient's back is straight and horizontal. The position must correct any lumbar lordosis which tenses the psoas and adds greatly to the surgeon's difficulties, as the lumbar sympathetic trunk lies medial to the psoas, and is difficult of access if this huge muscle is tensed like a bow string. The extended arms are handy for intravenous therapy.

*Side of Operation.* As the result of observing the effect of position on the action of the heart in poor risk patients, particularly those with enlarged hearts or myocardial degeneration, Dr. Samuel Hoffman, anaesthetist, suggested that as the strain of the second operation was greater than that of the first, the right side be operated on at the first stage. Then, as the

during the first stage and whole blood during the second.

#### THE OPERATION

An X-ray plate showing the last ribs is exposed. A short twelfth rib makes the operation more difficult as access is restricted after its removal. The first lumbar

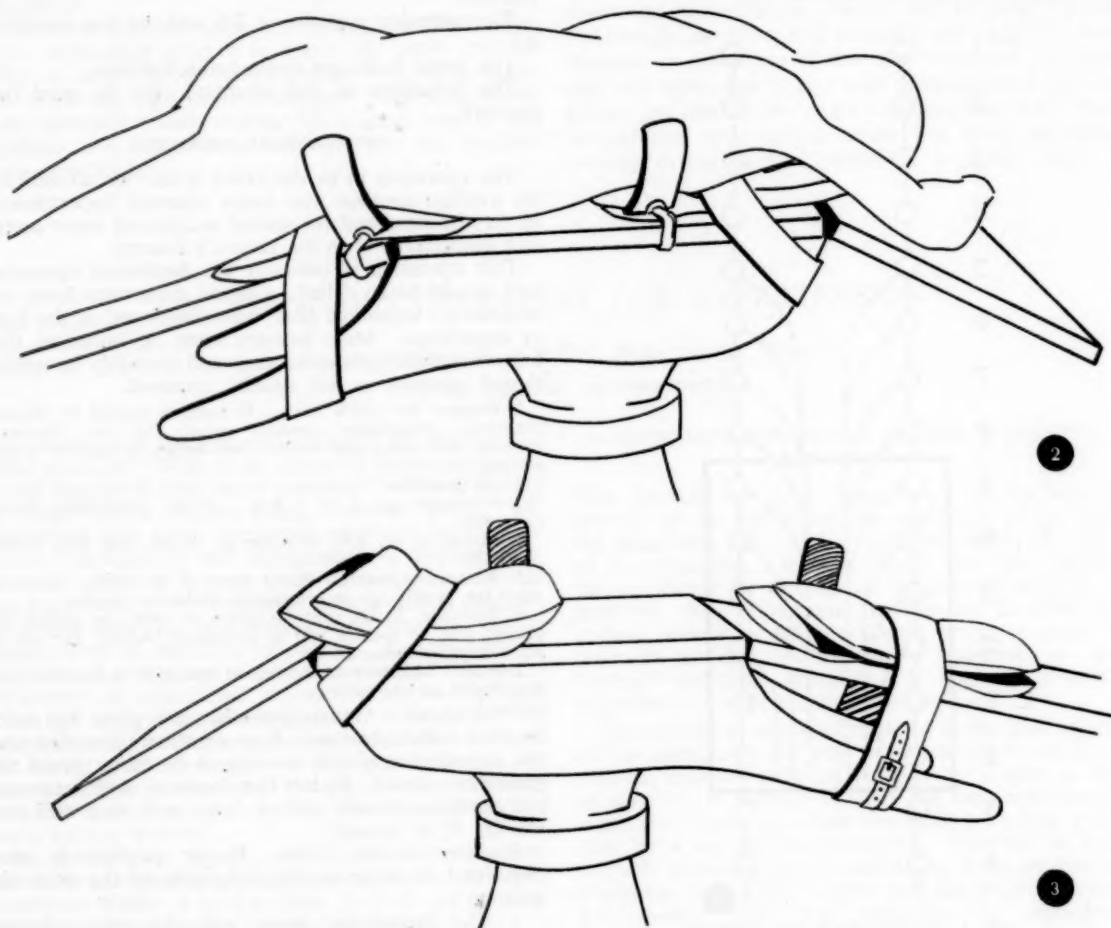


Fig. 2. The patient in position for the standard operation.

Fig. 3. The table prepared for the patient.

table is tilted away from the surgeon, the patient's weight presses most heavily on the left side of the chest. It has on occasions been found that the pulse weakens or disappears in this position and that it returns to its former strength by undoing the tilt. At the second stage when the left side is done the weight is on the patient's right, relieving pressure on the heart. Two assistants are required. One on the surgeon's right and one opposite.

Intravenous 5% glucose in distilled water is given

transverse process is usually the shortest lumbar transverse process. Sometimes it is longer than usual or a lumbar rib exists. This also adds to the surgeon's troubles as it renders impossible adequate retraction of the upper part of the psoas.

*The Skin Incision.* The skin is painted with tincture of iodine. This is the only application of antiseptic throughout. Three points are marked out with a needle: one 2 inches lateral to the midline just below inferior angle of scapula, the second 3 inches from midline on

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the twelfth rib, the third 6 inches from midline just above the iliac crest (Fig. 4).

In making the incision the operator is careful not to tail off below, as there is often a thick deposit of fat here which requires bold division.

Bleeding points are secured and ligatured. Often there is a period of several minutes during which there is little subcutaneous bleeding, then numerous bleeders

dorsal fascia). The muscle is cut across in the line of the skin incision. At the inferior angle of the wound the external oblique is split in the direction of its fibres, which run in the same direction as the skin incision.

*Dealing with the Sacrospinalis (Erector Spinae).* This muscle mass is of such importance in the operation that it is well to review its architecture. Extending from the spines of sacral and lumbar vertebrae to the outer



Fig. 4. The incision for the standard operation.

appear. Skin towels of huckaback are handed to the surgeon clipped together (Fig. 5).

They are sewn in position with a continuous suture on a straight skin needle. The outer towel is sewn in position. Both towels are then thrown to the opposite side and the second towel sewn in place.

*Dealing with the Muscles.* At the top end of the incision the trapezius is seen passing medially and very obliquely. It is not cut. The latissimus dorsi covers the rest of the exposed area and is cut across in the whole length of the incision. This reveals the parallel musculo-tendinous fibres of the serratus posterior inferior which is blended with the posterior layer of the lumbo-dorsal fascia (the thoracic part of the lumbo-

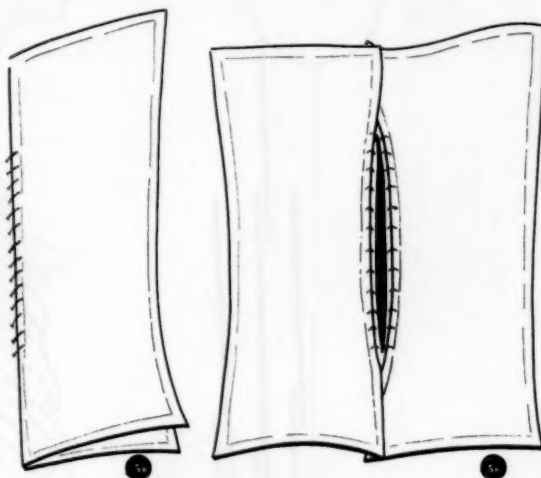


Fig. 5a. One of the skin towels has been sewn to the wound edge.

Fig. 5b. Skin towels are shown in position.

lip of the iliac crest and posterior ligaments of the sacro-iliac joints is a massive composite aponeurosis—the aponeurosis of origin of the sacrospinalis. It forms, with the underlying sacrum, an osseo-fibrous cave from the walls of which the sacrospinalis takes origin. The huge muscle mass extends into the lumbar region and then splits into three muscle groups lying side by side—spinalis, longissimus, and ilio-costalis. Each of these groups is made up of three muscle relays, the replacing muscle always being medial to the muscle it replaces (Fig. 6).

The spinalis is of no further concern. The longissimus is an enormous muscle having a herring-bone attachment to ribs laterally and transverse processes medially. The nerve supply of the muscle is segmental so that it may be divided transversely at any level with no resultant paralysis.

In the lumbar region the muscle is enclosed in the dense fascial sheath formed by the posterior and the middle layers of the lumbo-dorsal fascia. Appearing between the longissimus and ilio-costalis are the lateral branches of the posterior divisions of the thoracic spinal nerves. Each is accompanied by a leash of vessels. These are sensory nerves and they and the accompanying vessels are deserving of respect. Rough retraction will tear vessels which retract and bleed

freely. Inclusion of these nerves in ligatures is one of the causes of the pain so bitterly complained of by some patients (Smithwick). The lower two leashes in the series must necessarily be secured and cut (Plate 1, Fig. A).

With a pair of curved Mayo scissors the tendons of insertion of ilio-costalis lumborum are cut from lower six ribs. More medially the muscular slips of origin of

free. The reason for this wide mobilization of the vertical back musculature is to give access to the deep dissection (Fig. 7).

**Mobilization of Ribs.** The twelfth rib is now freed of all its attachments lateral to the tip of the twelfth thoracic transverse process. It is effected as follows: Its outer tip is exposed by the foregoing dissection. The attachments to the tip are cut loose with scissors.

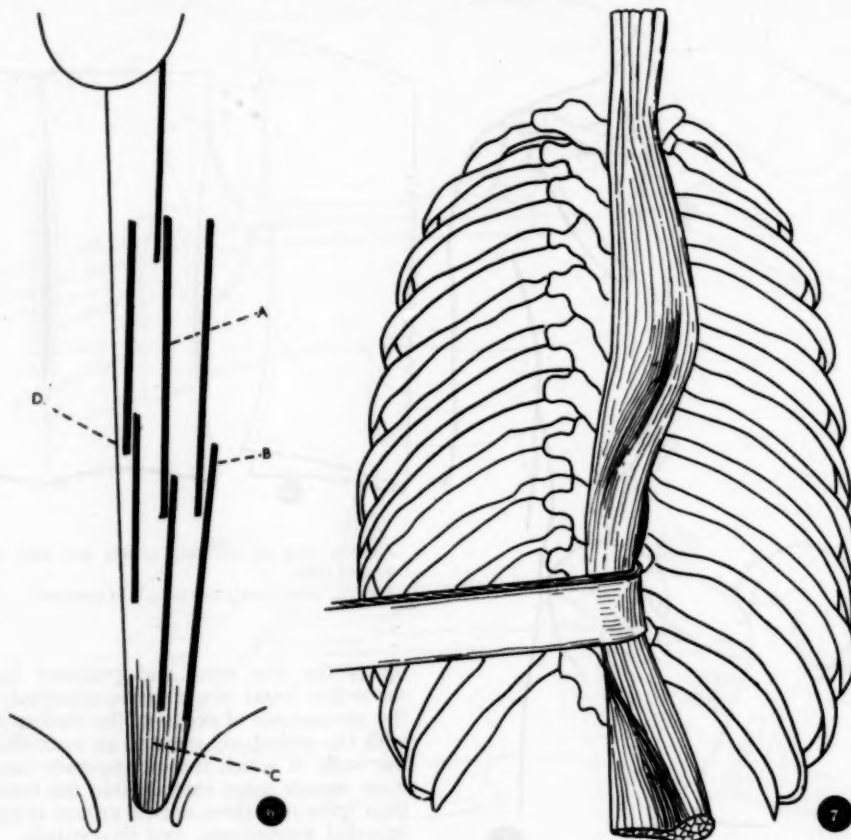


Fig. 6. The plan of the sacrospinalis. The figure shows only two of the three relays of the inner and outer muscle groups.

A. Longissimus. B. Ilio-costalis.  
C. Aponeurosis. D. Spinalis.

Fig. 7. Showing the wide mobilisation of the sacro-spinalis which must be done.

the ilio-costalis (costalis) thoracis are cut and so too the large muscular slips of attachment of the longissimus thoracis. Now the neurovascular bundles are exposed. It is well, in making these numerous sections, not to cut muscle on bone but a little distance from it. This makes the securing of small spurs easier. The attachments of these muscles to the twelfth rib and sometimes the eleventh also are big fleshy masses and detachment must be bold. The surgeon guards against the tendency to restrict division at the lower part of the wound where muscle masses are large and bleeding

These are slips of the three flat muscles of the abdomen and the diaphragm. In women with narrow waists the twelfth rib is nearly vertical in direction and freeing its tip is troublesome. It can be made easier by lifting it with a Lane forceps applied an inch medial to its end. The forceps should not be closed on to the ratchet as this may fracture the rib or tear the pleura. Bleeding is free during the section of muscles, as the subcostal vein is often cut. In any rib removal it is well to recall that the lower border of each rib is the vascular one, the upper border being avascular. The relations

## P L A T E I

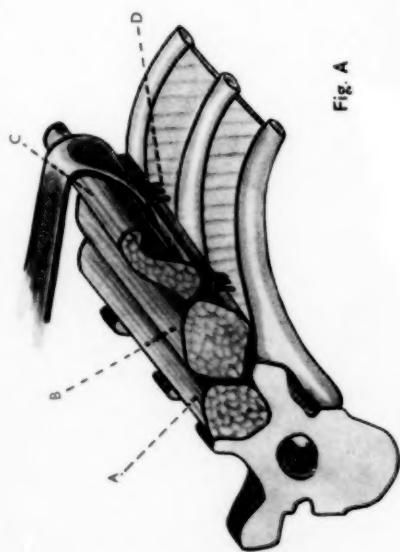


Fig. A

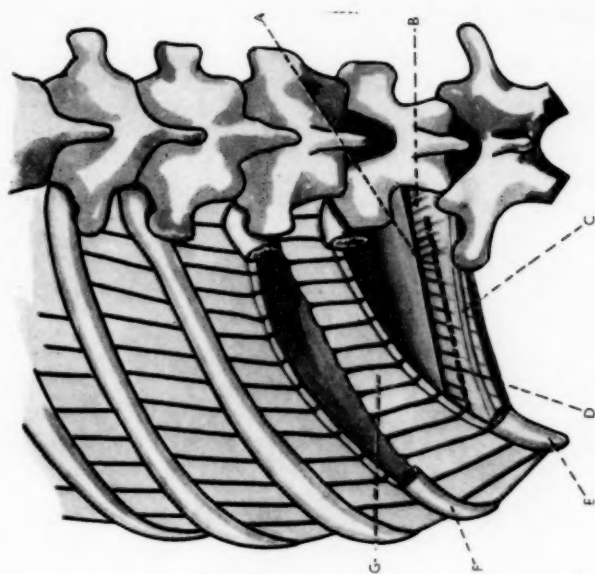


Fig. B

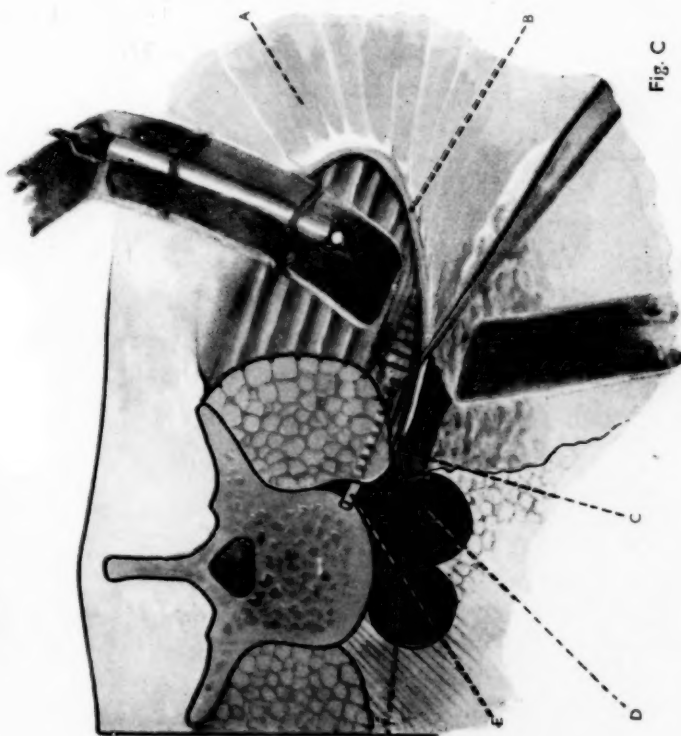


Fig. C

Fig. A. The figure is constructed to show the extent to which the mobilization of the sacro-spinalis should extend in a medial direction. The neuro-vascular bundles should not be injured excepting the lowest two which must necessarily be divided.

A. Spinalis  
B. Longissimus  
C. Ilio-costalis  
D. Neuro-vascular bundle

Fig. B. The anatomy exposed on removing the twelfth rib with its perosteum.

A. Pleural reflection  
B. Diaphragm  
C. Subcostal nerve.  
D. Line for division of diaphragm.  
E. Twelfth rib  
F. Eleventh rib.  
G. Intercostal bundle.

Fig. C. A cut-away diagram showing the 'blind pick-up'.

A. Diaphragm.  
B. Medial lumbo-costal arch.  
C. Lumbar vein.  
D. Inferior vena cava.  
E. Sympathetic trunk.  
F. Aorta.

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of the intercostal bundle are: vein, artery, nerve from above down, the vein contacting the rib (Fig. 8).

It is now possible to slip the left forefinger beneath the end of the rib. Should the rib be very long, an upper and a lower area are freed of muscle 6 inches from the midline and, after freeing the inner surface with a Doyen raspator, the rib is cut through with shears. The upper and lower borders are now cleared by cutting the muscle with scissors. The essence of the procedure is raising of the rib together with its periosteum, so that the pleura may be exposed. From

detached the two intercostal muscles and the lowest levator costae, which has a fan-shaped tendinous structure extending from the tip of the transverse process above to the upper border of the rib below between its tubercle and its angle. The lower border of the inner inch of the rib lateral to transverse process is now readily freed by Doyen's raspator. This is safer than sharp dissection which would endanger subcostal vessels. During the entire mobilization of this rib the forefinger pushes pleura away before every snip with the scissors.

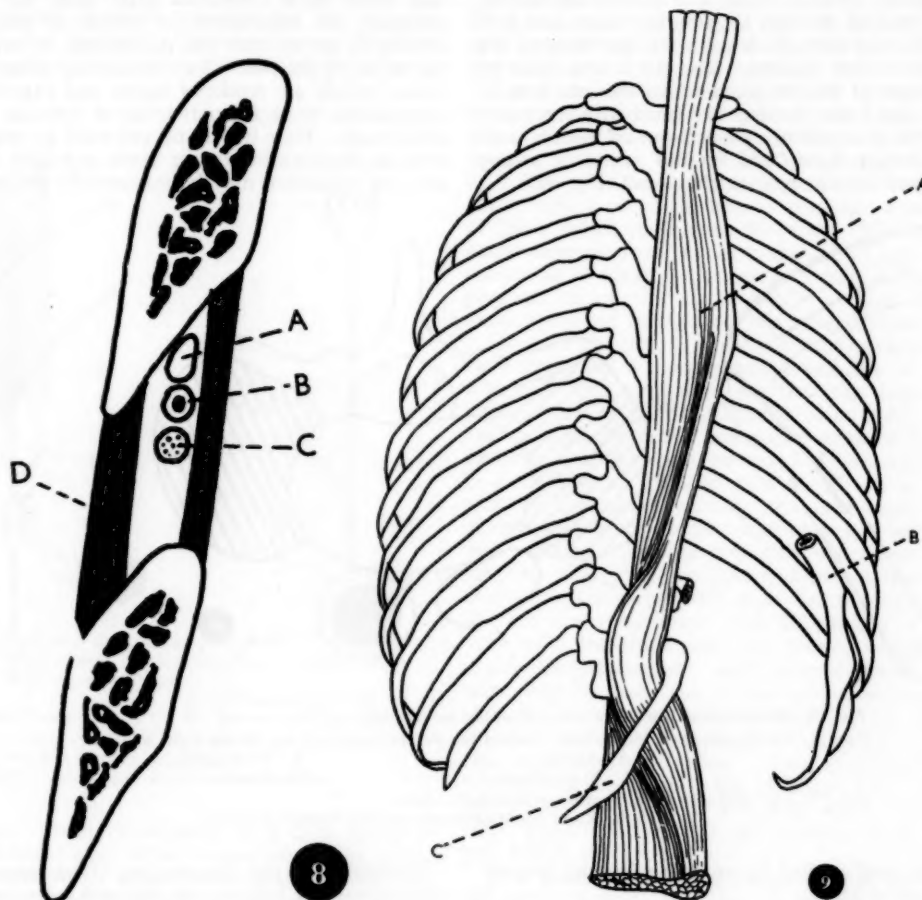


Fig. 8. The relations in the intercostal space.

A. Intercostal vein.  
C. Intercostal nerve.

Fig. 9. The manner of dealing with the eleventh and twelfth ribs.

A. Sacro-spinalis.  
C. Twelfth rib.

B. Intercostal artery.

D. External intercostal.

B. Eleventh rib.

the lower border of twelfth rib there is cut free at this stage of the dissection ilio-costalis, diaphragm, and the very strong middle layer of lumbo-dorsal fascia, here called the lumbo-dorsal ligament. The quadratus lumborum is also detached. From the upper border are

The twelfth rib is now free of attachments as far as its tubercle. The assistant puts a tape around the rib which will swing down and back and acts as an excellent retractor to hold the sacrospinalis out of the way (White).<sup>4</sup> The eleventh rib is dealt with in the reverse

manner—from within out. The sacrospinalis is retracted inwards. The levator costae is divided from the upper border of the rib and then the external intercostal just lateral to the transverse process. With a small swab the operative area is kept dry as the surgeon cuts away the muscle fibres of the external intercostal which pass down and out. Beneath them the pearly posterior intercostal membrane is seen. Its fibres pass down and in and it is as strong as a thin sheet of metal. Immediately beneath it is the pleura. The membrane is therefore divided with care when the pleura is immediately exposed. With a finger it is pushed off the rib, a raspator pushed through hugging the bone, and with rib shears the eleventh rib is sectioned just beyond the tip of the transverse process. The rib is now held up with the fingers of the left hand whilst the attachments to its upper and lower borders are freed with the knife, the pleura being constantly pushed out of harm's way.

The rib, having been freed for 3-4 inches, is swung up and out and rests snugly on chest wall (Fig. 9).

that the aperture is larger than the glottis. No attempt is made to suture the pleura at the end of the operation and the patient is none the worse for the occurrence.

On occasions the pleura may distend from air being sucked in through an invisible opening. It is well to be on guard for such an occurrence. On one occasion the anaesthetist reported disappearance of the pulse. Incision of a distended pleura immediately restored the heart beat. Not infrequently dense extra-pleural adhesions make pleural stripping difficult. Such bands should at times be cut with scissors. It is noteworthy that when such adhesions exist and the pleura is stripped, the attachment of pleura to periosteum of ribs is so strong that the periosteum is stripped from the necks of the ribs. Two conditions ensue: the intercostal vessels are rendered naked and exposed and the sympathetic trunk is sandwiched in between pleura and periosteum. Here it may be awkward to deal with, but with an appreciation of the event and care and gentleness the dissection may be successfully proceeded with.

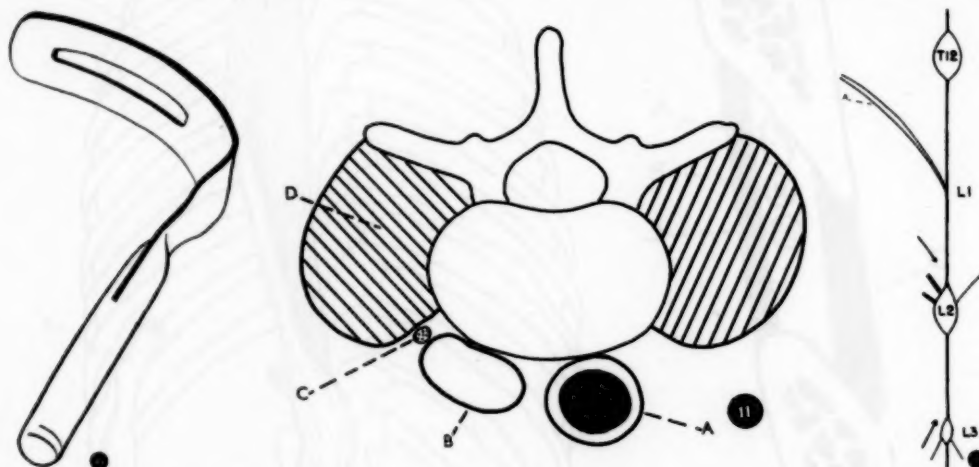


Fig. 10. The slotted retractor, which houses the pencil light.

Fig. 11. The sympathetic trunk lying "round the corner." It is shown on the right side only.

A. Aorta. B. Vena cava.  
C. Sympathetic. D. Psoas.

Fig. 12. The anatomy of the lumbar sympathetic chain.

A. Rami communicantes of first lumbar ganglion.

Towels are now applied to cover the muscles bounding the operation area.

**Dealing with the Pleura.** At this stage of the procedure the surgeon washes his gloves and with the right forefinger he proceeds to strip the pleura in a medial and upward direction. This membrane is stronger in relation to the vertebral column than to the ribs, so that the stripping should be towards the column and not laterally, where it readily tears. This accident is not important if properly dealt with. If the tear is wide it may make the operation a little more difficult. If the opening is small, then air is sucked in and the pleural sac balloons out. It should then be opened deliberately with scissors for an inch and a half so

**Dealing with the Diaphragm.** The operation area now appears as follows: the eleventh intercostal bundle crosses the field. The pleura and lung appear above, and below, the pleural reflection appears as a horizontal white line. If this is not seen, then with the handle of the knife tissues are pushed down off the diaphragm when the subcostal (twelfth thoracic) nerve will appear with the pleural reflection proximal. The vertically directed fibres of diaphragm are beneath it (Plate I, Fig. B).

Quite often the diaphragm is absent in its outer part and only the fascia transversalis with yellow fat beneath is seen. The diaphragm is picked up with forceps between pleural reflection and subcostal nerve and cut

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exposing fascia transversalis, a strong resistant membrane. It is also picked up and cut. The peri-renal fat bulges through. The left forefinger is now pushed through the opening, the middle finger follows and between them the diaphragm is divided parallel to the subcostal nerve. Posteriorly where branches of the inferior phrenic vessels run in the diaphragm it is picked up with cholecystectomy forceps, divided between them and ligatured.

*The Neurectomy.* At this stage the table is tilted away from the surgeon to an angle of 45°. Routinely the kidney is visualized by pushing the perirenal fat aside. The renal artery is palpated for the possible existence of the Goldblatt phenomenon—a disparity between the size of the vessel and the organ it feeds.

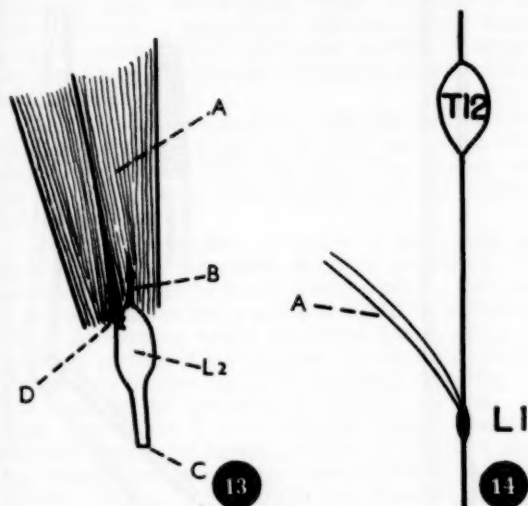


Fig. 13. The figure demonstrates that the sympathetic trunk above the second lumbar ganglion is smaller than the (lateral) ramus communicans.

A. Crus. B. Sympathetic trunk.  
C. Sympathetic trunk. D. Ramus communicans.

Fig. 14. The most typical of all sympathetic structures—the rami of the first lumbar ganglion.

A. Rami communicantes of first lumbar ganglion.

The suprarenal gland is palpated as a firm structure with a well-defined edge where it rests above the upper pole of the kidney. It has its own fascial sheath and therefore does not move with the renal organ. Should a tumour be felt in the suprarenal gland, the tumour is removed.

It is well to recall that surgical interference with the suprarenal may be followed by serious consequences, shock, catastrophic fall in blood pressure, etc. There is evidence that a tumorous suprarenal may result in such overaction of the affected gland that its (presumably normal) fellow may be in a condition of physiological inertia, so that all the gland hormones arise on the affected side. Means should be available in such cases for adequate replacement therapy. If the whole suprarenal requires removal, the surgeon may con-

templating a portion of it into a muscle bed temporarily to tide the patient over a period of acute suprarenal insufficiency. In a series of cases where Smithwick removed suprarenal tumours found incidentally at operation, in no case was the tumour a factor in the hypertension.

A roll of 6 inch gauze is now held by the assistant on the surgeon's right while the latter packs the gauze into the cavity behind the perirenal fat. A broad Deaver type retractor holds the gauze forwards. The opposite assistant holds a lighted retractor (Fig. 10).

The object of this retractor is to hold the psoas back. This assistant is unable to see the field of operation and therefore steadies the instrument once it has been placed in position by the operator.

*The Lumbar Dissection.* Arching across the psoas is the medial arcuate ligament which passes from the first lumbar transverse process to the body of the second lumbar vertebra. Above the diaphragm arises from it, below the fascia of the psoas fuses with it. It is better looked on as the upper open end of the stocking of fascia which ensheathes the psoas. The sympathetic trunk emerges from beneath this band but round the corner, so to speak, as the psoas muscle in this position presents an anterior and a medial surface, the sympathetic lying out of sight on this latter surface (Fig. 11).

On the right side, especially in thin subjects, the vena cava abuts on the psoas and great care is needed in dissection and retraction, not that this large vessel is likely to be injured, but lumbar veins enter the vessel and pass posterior and sometimes anterior to the sympathetic, and they may be torn. This accident results in a flooding of the field with blood. It is best dealt with by firm gauze packing and then careful removal of the gauze to expose the bleeding vein which is picked up and tied. Having had this experience once the surgeon will surely see that it does not happen again. It is always possible with good lighting and gentleness to free the sympathetic and disentangle it from the veins after the trunk has been divided distally.

On the left side the same care is necessary as the ascending lumbar vein is sometimes as thick as the little finger. Rarely outlying glands of the para-aortic (lumbar) group of lymph glands are seen. They are circumspically dealt with. The receptaculum chyli commences exactly in the field of the right-sided operation. Its injury is a serious matter and if milky chyle leaks into the field, the aperture must be sought and ligatured.

In a recent case during the process of dissecting out the tenth thoracic ganglion on the right side, a flow of lymph was noticed. This was traced to the lower end of the torn thoracic duct. A ligature was applied. There was no ill effect. It is noteworthy that the duct lay so far lateral.

All being now prepared, the sympathetic trunk is sought for round the psoas corner. There is very often a single tendinous fibre of the crus running down on the psoas. The sympathetic is lateral to this.

*The Blind Pick-up.* Once the inner border of the psoas is exposed below the arcuate ligament and the veins are visualized, it is usually possible to pass a Smithwick hook round the corner of the psoas and

pick up the sympathetic. This is not a blind procedure but a valuable measure once the anatomy of the area is clearly delineated. The nerve trunk is a tightly stretched structure of variable size and simply cannot be mistaken for anything else. It is fixed above where it comes through the crus and fixed below by the rami binding down the second lumbar ganglion (Plate I, Fig. C).

are often larger than the main sympathetic trunk and the operator may readily follow the rami and cut the trunk (Fig. 13).

The rami are lateral, the trunk is medial. Although not absolute, it is sufficiently common to constitute the normal, that the sympathetic connection between T 12 and L 1 is as thin as a piece of thick surgical catgut. This tenuity may extend to L 2. The trunk having been

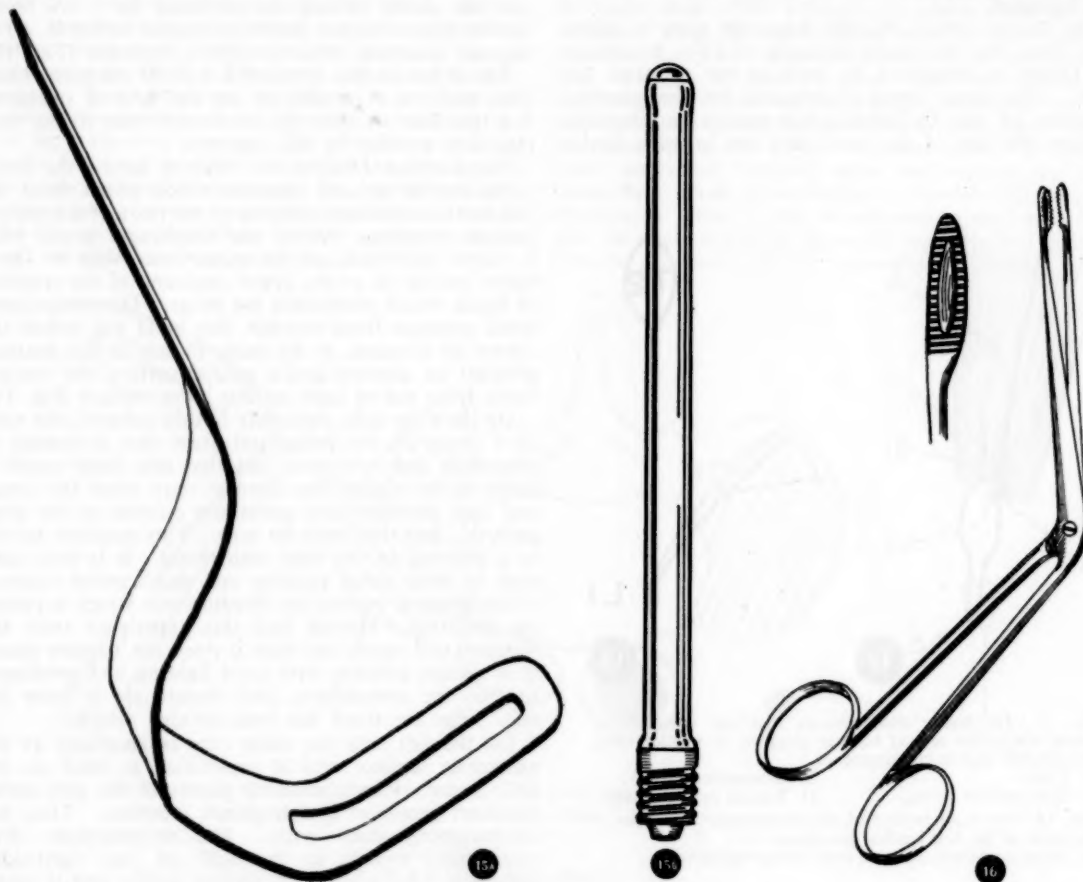


Fig. 15a. The slotted thoracic retractor.

Fig. 15b. The pencil light x 2.

Fig. 16. Hartmann's forceps.

After the trunk has been picked up, it is followed distally, and picked up again below lumbar 2. This is a large ganglion recognizable by the fact that the large rami passing to it are directed caudally (Fig. 12).

The trunk is clipped with a metal clip, held with an artery forceps and cut between forceps and clip. Clips are applied to all rami divided as a measure to prevent regeneration. The communications of the second ganglion are now tensed, clipped and cut. Above its outer end the trunk enters the crus and here it is easy to be misled as the rami communicantes of lumbar 2

freed up to the crus, the dissection now changes to the area immediately above the diaphragm. It happens occasionally that the lumbar sympathetic trunk cannot be exposed with safety from below. In such cases the nerve trunk can always be found above the diaphragm. Some authorities (White) routinely commence the dissection above.

Lying closely together at the level of the first lumbar vertebra and between pleura and diaphragm anteriorly and bone posteriorly are lumbar sympathetic trunk (very thin), least, lesser and great splanchnic nerves.

Only the first and last of these nerves is likely to be seen. The most lateral is the sympathetic trunk. It is picked up on a hook and traced down. Quite soon an arching nerve fibre, usually as thick as the sympathetic trunk itself, is seen joining the trunk laterally at an acute angle. It is the first white lumbar ramus communicans. Sometimes it is double and then includes the grey ramus. It is the most characteristic of all sympathetic structures because of its great length—1½ inch—its constant situation and its arching course (Fig. 14).

There may be, but usually is not, a ganglion marking this junction. Below the union the trunk is invariably very firmly bound down to bone behind the crus and it is necessary to tease away muscle fibres and cut one tendinous band with scissors before the trunk is free and continuity is established with the second lumbar ganglion below. Here again each portion of tissue is carefully scrutinized before division to avoid cutting a lumbar vein.

*The Thoracic Dissection.* The far assistant now changes his retractor for a thin bent instrument which also carries a pencil light (Fig. 15). The surgeon strips the pleura medially and upwards and the overhead light is switched off.

The twelfth ganglion is usually a large important ganglion. Fairly constantly the third splanchnic nerve (imus or least) can be found arising from it. The trunk is picked up above the ganglion and held by an assistant, while the surgeon tenses the trunk below. Now the posterior surface of the ganglion can be dissected free, Hartmann's forceps being an invaluable help (Fig. 16). The rami of the ganglion are clipped and cut. The freed nerve trunk is now threaded through above the eleventh intercostal bundle and the far assistant places his lighted retractor in the tunnel between ribs and stripped pleura. The ganglia are dissected free.

The most important steps in this procedure are the exposure of these structures and the protection of the intercostal vessels. There is always a fascia covering the ganglionated chain. In all but the very thin there is enough fat beneath the fascia to hide the sympathetic completely. It is a good guide to know that the ganglia are constant in their relation to the head of the rib which can be felt. There are always an intercostal artery and vein directly posterior to the ganglion and in contact with it. These structures deserve the utmost respect. It is embarrassing when working in a narrow distant tunnel to find the field flooded with blood. It is possible to clip the bleeder after a varying amount of blood loss and trouble. It is much better to avoid the accident. This may be done by carefully easing the ganglion off the vessels with the Hartmann and clipping securely any structure before division. The medially directed nerves from the ganglion go to constitute the splanchnics. Occasionally one is exceptionally large which often means that the great splanchnic has a low upper origin.

The dissection is continued as high as the operator can go compatible with safety, i.e. the adequate control of any bleeding that may occur. This is usually the ninth thoracic ganglion and sometimes the eighth. The

trunk is clipped above and cut or avulsed between two gall bladder forceps.

*The Splanchnic Avulsion.* The overhead light is put on and the area just above diaphragm exposed. Here the great splanchnic nerve is readily picked up lying on

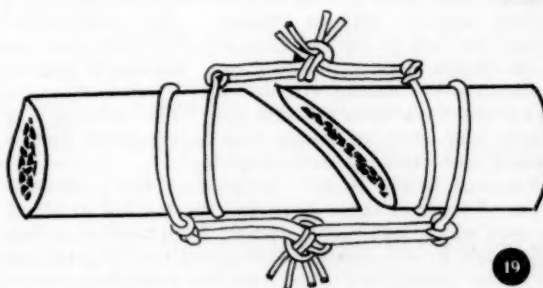
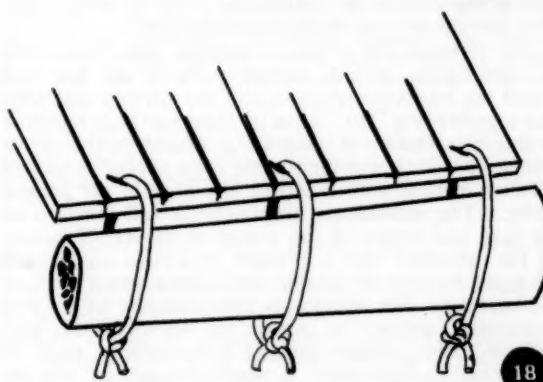
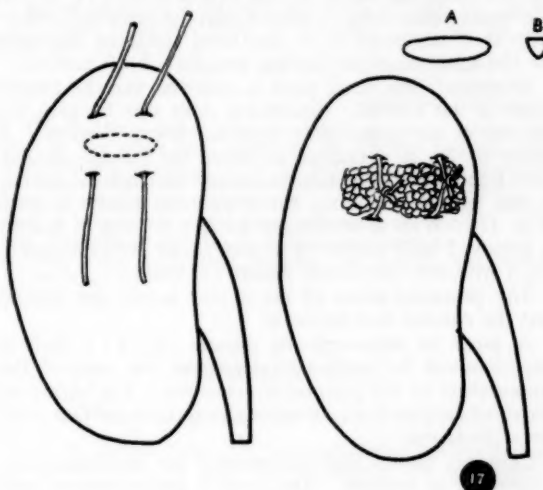


Fig. 17. The renal biopsy. Inset shows half the actual amount kidney tissue removed.

A. Plan

B. Section.

Fig. 18. Fixation of diaphragm to twelfth rib.

Fig. 19. Ligation of rib.

the shelving diaphragm. It is clipped as it pierces this muscle, secured with an artery forceps and cut. With the right forefinger it is readily stripped to the top of the field and there gripped by two artery forceps and avulsed between them. Sometimes it is detached by the stripping when its top origin is low (T 7). If the lesser splanchnic is seen it may be removed, otherwise it is neglected as it has been rendered impotent by the removal of its feeding ganglia—T 10 and 11.

**Biopsies.** The renal pack is removed and the kidney fixed in the wound. Smithwick does this by gripping the fat at its upper pole with an artery forceps. A sliver of fat is prepared to cover the biopsy wound. Two fine plain catgut sutures are put through the kidney at the site of election. An atraumatic needle is used (Fig. 17). With a vaserized knife a section of kidney is removed and placed in formol-saline without touching it with any instrument except the knife.

The prepared piece of fat is laid across the wound and the sutures tied across it.

A piece of sacro-spinalis muscle  $1\frac{1}{2} \times \frac{1}{4} \times \frac{1}{4}$  inch is also removed for section to determine the state of the musculature of the peripheral arterioles. The object of the renal biopsy is to correlate the renal condition with the clinical one.

**Closure.** Swabs and instruments are checked. The diaphragm is sutured. The twelfth rib is swung back into position and the diaphragm sutured to it. This fixes the rib and the diaphragm (Fig. 18).

The eleventh rib is put in position and fixed there by two cotton or silk sutures. These are first tied round the transverse process and the rib end and then tied together (Fig. 19). Thus no bone has been removed in this procedure. A catheter is placed in the retropleural space. If the pleura has been opened a second catheter marked with a thread is placed in the pleural cavity. The anaesthetist demonstrates full inflation of the lung and suture of the wound is begun. The arm on the operation side is brought to a right angle on a toboggan to prevent tension and displacement of skin and muscles. The serratus is approximated with a few interrupted sutures to bring the sacrospinalis into position. The catheters emerge at the inferior angle of the wound. Latissimus is approximated by sutures spaced  $\frac{1}{4}$  inch apart and the skin is closed by interrupted sutures applied without tension. The anaesthetist inflates the lung as the catheters are withdrawn, the one in the pleura being withdrawn last. Suction is applied to the catheters during withdrawal.

One stitch occludes the skin gap. The dressing is a 2-inch wide strip of gauze four layers thick and is applied with mastisol and strapping.

**Removal to the Ward.** Because of the poor condition of some of these cases and the big fall in blood pressure which may occur, transfer from table to trolley and trolley to bed must be slowly and carefully carried out. The anaesthetist supervises the procedure.

#### POST-OPERATIVE CARE

1. The foot of the bed is raised.
2. Pulse rate, blood pressure, and respiration are recorded each 15 minutes.

3. The patient is turned from back to non-operated side or *vice versa* each hour.

4. Deep breathing and leg and foot movements are encouraged.

5. 5% glucose in distilled water is given intravenously at the first operation and whole blood at the second. The glucose water is continued until the estimated fluid requirement is fulfilled.

6. Neosynephrin 2 minims is given if the systolic pressure falls below 90 mm. Hg. Should the pressure not respond the dose is repeated each 15 minutes. If at the end of two hours the systolic is still below 100 mm. Hg a further 500 c.c. of blood is given.

7. Omnopon gr.  $\frac{1}{2}$  is given each four hours as indicated.

Following the first operation the patient dangles the legs on the second day and gets out of bed on the third. These actions are postponed each for two days more after the second operation. Leg bandages and lower abdominal support are worn for two to three months after operation.

#### COMPLICATIONS

The occasional post-operative death is due to coronary infarction, cerebral thrombosis or uraemia. Sepsis does not occur. The commonest complication is a retropleural haematoma due to reactionary bleeding. It is best left alone until the eighth or tenth day when a single aspiration usually cures the condition. The stethoscope is not always reliable. It should be a rule to X-ray the chest after each operation about the time the stitches are removed. Radiologists say that when fluid shows in the chest in an X-ray film at least 10 oz. are present (Samuel).

**Post-Operative Pain.** This is certainly the most troublesome sequela of the operation. Most cases suffer from mild pains. In some cases it is very severe. The main sufferers are big sturdy individuals. This plus the fact that the pain begins a week or so after operation suggests that it is of traumatic origin. It occurs in the distribution of thoracic eleven and twelve and first lumbar spinal segments. When analgesics fail some relief may be obtained by procain injection of the spinal nerves involved. Smithwick states that the most effectual method of producing neuritis is to cut spinal nerves. The patient should be encouraged by the statement that the pain invariably disappears. He should not be told that everyone's patience may be exhausted before this happy event occurs. The writer and his staff are satisfied that since introducing the procedure of rib mobilization and re-position, there is very much less post-operative pain than occurs following removal of ribs. Tachycardia follows operation in rare cases. If persistent it may necessitate ablation of the upper thoracic ganglia on each side which removes the accelerator fibres to the heart and cures the tachycardia.

**Cerebral Thrombosis.** This serious complication follows operation in 2% of cases, and occurs soon after the patient comes round from the anaesthetic. It is evidenced by hemiplegia, anarthria, etc. One case lapsed into coma and died. All others recovered perfectly. It is possible therefore to give a reasonably good prognosis. Ward staff should be so trained that if,

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after operation, the systolic blood pressure remains below 90 mm. Hg for an hour, the blocks at the foot of the bed should be raised to 12 inches, the lower limbs firmly bandaged and a firm many tail binder applied to the abdomen.

#### CONCLUSIONS

1. Operation is accepted as part of the therapy of essential hypertension.
2. The standard operation should be within scope of the general surgeon.
3. The standard operation should afford maximum safety to the patient.
4. This is secured by:
  - (a) Generous exposure.
  - (b) An extrapleural procedure.
  - (c) A sub-total splanchnicectomy.
5. The Smithwick operation of lumbo-dorsal splanchnicectomy fulfils these criteria.

Dr. E. A. Thomas has drawn the figures. I owe him my thanks for the excellence of the drawings executed despite the multitudinous duties of a busy practice.

#### REFERENCES

1. Palmer, R. S. (1947): J. Amer. Med. Assoc., **134**, 9.
2. Fishberg, Arthur M. (1948): J. Amer. Assoc., **137**, 670.
3. Smithwick, R. H. (1947): New Eng. J. Med., **236**, 662.
4. White, J. C. (1946): *Surgical Treatment*. Philadelphia: Lippincott.

### VERENIGINGSNUUS: ASSOCIATION NEWS

MINUTES OF THE EXTRAORDINARY GENERAL MEETING OF THE MEDICAL ASSOCIATION OF SOUTH AFRICA, HELD AT MEDICAL HOUSE, CAPE TOWN, ON WEDNESDAY, 8 FEBRUARY 1950, AT 4 P.M.

*Present:* The President, Dr. A. W. S. Sichel, and two members.

As there was not a quorum of members present, the President declared that, in terms of the notice published in the *South African Medical Journal* of 14 January 1950, the meeting would stand adjourned until 15 February 1950, when it would be convened at the same time and place.

The meeting was declared adjourned.

MINUTES OF THE ADJOURNED EXTRAORDINARY GENERAL MEETING OF THE MEDICAL ASSOCIATION OF SOUTH AFRICA, HELD AT MEDICAL HOUSE, CAPE TOWN, ON WEDNESDAY, 15 FEBRUARY 1950, AT 4 P.M.

*Present:* The President, Dr. A. W. S. Sichel, and two members.

The Medical Secretary read the notice convening the meeting, which had been published in the *South African Medical Journal* of 14 January 1950, as follows: 'Notice is hereby given that an Extraordinary General Meeting of the Medical Association of South Africa will be held at Medical House, 35, Wale Street, Cape Town, on Wednesday, 8 February 1950, at 4 p.m., for the purpose of considering and, if thought fit, of passing the following addition to the Articles of Association:

"30 bis. Notwithstanding anything to the contrary contained or implied in any Regulation, By-Law or Rule, it shall be competent for the Council in any case of emergency, as to the existence of which the Council shall have an unchallengeable discretion, to frame by way of resolution passed in terms of Article 30 (b) Rules as to the ethical conduct of members *inter se* which shall be deemed to override and repeal any resolution of any Division or Branch which may be in conflict with such Resolution of the Council so that in so far as there may at any time be found to be any inconsistency or conflict between any relevant resolution as to ethical conduct which

may have been passed or which may hereafter be passed by any Division or Branch on the one hand and any Resolution of the Council on the other, the latter, that is such Resolution of the Council, shall prevail, shall be of force and effect and shall be regarded as an ethical resolution of all Divisions and Branches of the Association to the exclusion of any conflicting resolution of any Division or Branch."

In the event of a quorum not being present, the meeting will stand adjourned until 15 February 1950, at the same time and place.

By order of the Council,  
A. H. Tonkin,  
Medical Secretary.'

The President stated that the object of calling this meeting was to give effect to a resolution of Federal Council, which had received the approval of the Branches, making it possible for the Council to initiate and frame ethical rules. He formally moved the adoption of the new Article of Association as set out in the notice convening the meeting. This was seconded by Dr. H. A. Shapiro and *carried*.

There being no further business, the meeting was declared to be at an end.

### PASSING EVENTS

#### THE C. J. ADAMS MEMORIAL TRUST FUND

The C. J. Adams Memorial Trust Fellowship has made grants available to Dr. A. Katz, Dr. J. Hansen, Dr. F. Charnock and Dr. W. Grundill.

The value of this Fellowship is £500 a year and may be renewable. The S.A. Association has an arrangement with the Nuffield Foundation in London whereby the Nuffield Foundation assists Fellows in placing them at hospitals so that they may get the best possible training during their stay overseas.

Dr. J. D. Raftery, F.R.C.S. Eng., D.Phil. Oxon., B.Sc. Hons. (Rand.), has been appointed Assistant Visiting Orthopaedic Surgeon to the Addington Hospital, Durban, from 1 March 1950.

The Physicians' Group (M.A.S.A.) has received the following invitations:

1. (a) To submit papers for presentation at the First International Cardiovascular Congress to be held in Paris from 3-9 September 1950.

(b) To appoint an official delegate to the same Congress.

2. To appoint delegates who may be willing to read papers and take part in the Congress of the International Society of Internal Medicine to be held in Paris from 11-13 September 1950.

Will any physicians interested kindly submit the titles and summaries of papers they may wish to present to the Honorary Secretary, Physicians' Group, 1101 Medical Centre, Jeppe Street, Johannesburg, so that they may be put before our local Executive (as suggested by the International Societies) for selection.

Would any physician who will be in Europe in September 1950 and able to act as a delegate to one or both of these Congresses kindly communicate with the Secretary.

Dr. Charles Hill, the Medical Secretary of the British Medical Association, has been returned to Parliament as a National-Conservative-Liberal member.

#### CAPE TOWN MEDICAL LIBRARY: LIST OF ACCESSIONS, JUNE-NOVEMBER 1949

Members of the Association are advised that the latest accessions list is now ready and may be obtained on application to the Medical Library, Medical School, Mowbray, C.P.

## REVIEWS OF BOOKS

## HANDBOOK OF SURGERY

*Handbook of Surgery.* By Eric C. Mekie, M.B., Ch.B., F.R.C.S. (Edin.), F.I.C.S., and Ian Mackenzie, M.B.E., M.B., Ch.B., F.R.C.S. (Edin.) (Pp. 764 + xvi. 20s.) Edinburgh: E. & S. Livingstone. 2nd ed. 1949.

*Contents:* 1. Inflammation. 2. Specific Infections. 3. The General Effects of Injury. 4. Wounds: Burns and Scalds. 5. Ulceration and Gangrene. 6. Tumours. 7. Lesions of the Skin. 8. Surgery of the Vascular System. 9. Lymphatic System. 10. Autonomic Nervous System. 11. Lesions of the Head, Skull and Brain. 12. Lesions of the Mouth and Salivary Glands. 13. Neck, Thyroid, Thymus. 14. Lesions of the Oesophagus. 15. Thorax. 16. Breast. 17. Spine and Spinal Cord. 18. Abdomen. 19. The Abdominal Wall and Hernia. 20. Peritoneum. 21. Lesions of the Stomach. 22. The Intestines. 23. The Appendix. 24. Rectum and Anus. 25. Gall-Bladder, Liver and Pancreas. 26. The Spleen. 27. The Kidney. 28. Lesions of the Bladder, Prostate and Urethra. 29. Lesions of the Testicle, Penis and Scrotum. 30. Lesions of Bone. 31. Diseases of the Joints. 32. Muscle, Tendon and Fascia. 33. Peripheral Nerves. 34. Lesions about the Shoulder and of the Arm. 35. Lesions about the Elbow. 36. Lesions of the Forearm and about the Wrist. 37. Lesions of the Hand. 38. Surgery of the Hip and Thigh. 39. Surgery of the Knee. 40. Surgery of the Leg and Ankle. 41. The Foot.

This is a short compact book on surgery suitable for the undergraduate. Great care has been taken to present the facts tersely and in tabular form where they are easy to read and rapidly assimilable. The terseness of the book is further accentuated by reducing the diagrams to an absolute minimum; although some would hold that extra diagrams might shorten the book still more. If the function of the book is that of an *aide memoire* to surgery, then diagrams are useful pegs on which to hang some of the vast amount of material the student is required to carry about with him.

The standard criticism of all short textbooks applies here: the surgical problem is expressed without discussion or argument. This deprives the student of a valuable incentive to think about surgery on his own with resultant benefit to his clinical acumen.

Of its type, this is a good book, and it is just the sort of compendium that will provide an invaluable sheet anchor, especially when the undergraduate feels in danger of being overwhelmed by the ramifications of modern surgery.

## AVIATION MEDICINE

*Aviation Medicine, Its Theory and Application.* By Kenneth G. Bergin, M.A., M.D., D.P.H., A.F.R.Ae.S. (Pp. 448 + xvi with 120 illustrations. 35s.) Bristol: John Wright & Sons, Ltd. 1949.

*Contents:* Part I. Introduction. 1. The Development of Aviation Medicine.

Part II. Physiological Considerations. 2. The Atmosphere and Respiration. 3. Vision. 4. Hearing. 5. Diet and Nutrition. 6. Alcohol. 7. Smoking. 8. Speed and Acceleration. 9. Equilibrium. 10. Pressurization. 11. Temperature, Ventilation, Humidity and Noxious Fumes. 12. Noise and Vibration.

Part III. Medical Considerations. 13. Anoxia. 14. Explosive Decompression. 15. Oxygen Poisoning. 16. Decompression Sickness. 17. Air-sickness. 18. Otitic Barotrauma. 19. Aviation Deafness. 20. Sinus Barotrauma. 21. Fatigue. 22. Disturbances of Vision associated with Flying. 23. Frost-Bite. 24. Burns. 25. Postural Oedema. 26. Transport of Invalids, Infants and Pregnant Women by Air, and the Use of Drugs in Flying. 27. Flying Emergencies.

Part IV. Psychological Considerations. 28. Methods of Study. 29. Aircrew Neurosis. 30. Aircrew Neurosis (cont.). 31. Aircrew Neurosis (cont.). 32. Flying Stress. 33. Morale. 34. Accidents.

Part V. Preventive Health. 35. Epidemiology and Air Travel.

Part VI. Appendices.

There are many doctors in this country who are unacquainted with the numerous problems encountered in air travel. There are few doctors who cannot nowadays afford to be interested in the medical aspects of flying as an increasing number of patients and normal subjects seek advice about fitness for an

air trip. There has, of course, been extensive research in recent years in this field, with detailed information given in specialised publications. The book under review presents the more important features of the subject rather concisely with many illustrations, interesting diagrams (some of which might have been described in more detail), tables, illustrations, and with references at the end of each section. Some idea of the contents will be gained from the list given in the heading above. Amongst the special physiological topics dealt with are fixed and portable oxygen apparatus, and pressurised equipment for high-flying aircraft; visual acuity, night vision, colour vision, ocular muscle balance, stereoscopic vision and monocular and binocular aids in flying; the effects of acceleration (the majority of symptoms are produced by changes in direction of aircraft at high speeds) and the methods of preventing 'black-out' in flying; the maintenance of equilibrium by vision, muscle and somatic sense, sound vestibular and labyrinthine organs and by instruments; the problem of excessive (desert) heat which is easier to deal with than excessive cold. In the medical section some aspects of anoxia, the predisposing factors, symptoms and treatment, are discussed. Air sickness (analogous to car-, train- and sea-sickness) is considered in detail; diet, seating, ventilation, psychotherapy and other factors are important, and of the drugs used hyoscine has been most favoured, while recently the drug 'dramamine' has been introduced as being effective. In the section dealing with transport of the sick by aeroplane, a useful table of the medical contraindications in the various diseases is given.

This book will be of interest and value to members of the medical profession generally who may be approached occasionally for advice regards flying, and more especially to those who are more regularly in contact with or in charge of aircrews and ground personnel.

## WARD ADMINISTRATION AND CLINICAL TEACHING

*Ward Administration and Clinical Teaching.* By Florence M. Gipe, M.S., R.N. and Gladys Sellev, Ph.D., R.N. (Pp. 350. With 20 illustrations. \$4.25.) St. Louis: The C. V. Mosby Co. 1949.

*Contents:* Part I. Ward Administration. Unit 1. 1. The Nature of Ward Administration. 2. Activities Covered in the Ward Administration. 3. Administrative Activities: The Eighth Group of Activities. 4. Administration, Supervision and Teaching Integrated. 5. Administration, Supervision and Teaching Integrated (Continued). 6. The Use of Personnel Work, Counselling and Guidance in Administration. 7. Further Consideration of the Ward Administrative Plan. 8. Hours of Nursing Service Required Per Patient Per Day. 9. Study of the Effectiveness Factor in Student Nursing in Relation to the Replacement of Personnel and Relative Cost of Student and Graduate Nursing Service. 10. Assignment of Duties to the Ward Personnel.

Unit II. The Ward in Relation to the Hospital. 11. The Hospital Building. 12. Co-operation With the Hospital in Service to the Patient, and the Community. 13. The Environment. 14. Nursing Procedures and Assisting the Physician, Teaching the Patient and His Friends. 15. Nursing Activities in Relation to Foods and Nutrition. 16. Administrative Control Over the Giving of Medicines. 17. Administrative Control of Records and Reports.

Part II. Clinical Teaching. Introduction. Unit I. 18. Methods and Procedures Commonly Used in Clinical Instruction. 19. Clinical Teaching in the Preclinical Period.

Unit II. 20. The Unit of Teaching and the Unit of Learning in the Clinical Area. Bibliography.

This book follows a logical plan, dealing first with general principles of administration and applying these to the organization and management of hospital wards. Stress is laid on the importance of the clear visualization of purpose and the formulation of the administrative plan for the smooth and co-ordinated functioning of the nursing unit towards the achievement of its professional objective, and on the necessity of employing scientific methods for the evaluation of nursing and administrative procedures. Useful detailed accounts of studies to exemplify these principles are given.

The training of student nurses as a secondary but important purpose of a hospital profoundly affects the administration of nursing services both in the hospital at large and in the wards in particular, and this aspect is exhaustively discussed.

The relationship of the ward as a nursing and teaching unit

to the rest of the hospital is then fairly comprehensively described, together with the effects of other departments on the administration of the ward unit.

Finally methods of clinical instruction of student nurses in the wards and the integration of these with the formal teaching in the nursing school, are reviewed and illustrated, the emphasis throughout being laid on the cultivation of the student's ability to think, to co-ordinate her present study with her past teaching and experience, and to form sound professional judgments.

The importance of this book to nursing administrative officers and teachers and to post-graduate nursing students is self evident. To medical practitioners concerned in the administration of hospitals a comprehensive work on nursing administration must be of interest, as without the nursing service the hospital cannot exist, and a full understanding of this service is necessary to the efficiency of their own work. To them this book offers much that is important and suggestive, particularly in view of the forward strides being made in nursing education and professional organization in this country at the present time.

#### COLE'S OPERATIVE TECHNIC IN SPECIALTY SURGERY

*Operative Technic in Specialty Surgery.* Edited by Warren H. Cole, M.D., F.A.C.S. (Pp. 725 + xx. With 394 illustrations. \$14.) New York: Appleton-Century-Crofts, Inc. 1949.

*Contents:* 1. Plastic Surgery. 2. Thoracic Wall, Pleural Cavity, Lungs and Diaphragmatic Hernia. 3. The Heart and Mediastinum. 4. Fractures. 5. Hematogenous Osteomyelitis. 6. Deformities and Neoplasms of the Bone. 7. Surgical Approaches to the Joints. 8. The Orthopedic Surgical Treatment of Spastic Paralysis and Anterior Poliomyelitis. 9. Scalp, Cranium and Brain. 10. The Spinal Cord. 11. Surgery of the Intracranial Nerves. 12. Peripheral Nerves. 13. The Autonomic Nervous System. 14. Gynecological Surgery. 15. The Male Genito-Urinary System.

This book of 725 pages encompasses within its covers the following specialties: (1) Plastic Surgery. (2) Thoracic Surgery, including the Heart and Mediastinum. (3) Orthopaedic Surgery. (4) Neurosurgery. (5) Gynaecological Surgery. (6) Genito-Urinary Surgery of the Male.

It must be obvious that within so comparatively small a book it is impossible to deal exhaustively with each specialty. One is left to speculate why this book has been written, because there are so many books exclusively devoted to each specialty which describe the minutiae of operative technique in much greater detail than is presented in this book.

Goethe has stated: 'In der Beschränkung zeigt sich erst der meister' (It is working within limits that the master reveals himself). Although many well-known names in the American surgical world have contributed chapters in this book, much has been left unsaid.

This book is edited by a renowned general surgeon, and although it indicates the value of a general surgical training for a specialty surgeon, there is no section devoted to gastrointestinal surgery.

The section on the operative treatment of fractures is well worth reading. The author very wisely states that 'most simple fractures can and should be treated by conservative methods, because exposure of the fracture by operation adds the danger of infection to damage already present'. This is meant to be a justifiable curb on the modern ever-ready tendency to operate on all fractures. The operative treatment of fractures demands rigid asepsis, as the surgeon is dealing with damaged and partially devitalized tissues which have little resistance to infection. Once infection is established in bone it tends to persist—bones are filled not with red-marrow, but with black ingratitude.

The section on peripheral nerve surgery makes interesting reading, and the useful point is established that when nerves are sutured with tantalum wire, we can evaluate radiologically whether any separation or not occurs of the sutured ends.

The surgery of the autonomic system is described by Smithwick, whose operative procedures and researches in the treatment of hypertension are well known.

The chapter devoted to acute haematogenous osteomyelitis deals with the subject from all aspects, aetiology, pathology, bacteriology, etc., but one is struck with the small dosage of penicillin advised in the treatment of the acute phase of the disease. The author lays particular stress upon the systemic manifestations of the condition, and very correctly points out that the bone involvement is only a local manifestation.

In discussing prostatic surgery the author dismisses the Millin operation of retropubic prostatectomy in a few lines, certainly insufficient for the performance of the operation.

Many of the chapters are well documented with an extensive bibliography, which gives good guidance for further reading to anyone whose interests are devoted to that particular subject.

The book is well produced and contains many interesting illustrations. In particular one may mention Fig. 252, illustrating spinal cord lesions.

#### DISEASES OF WOMEN: TEN TEACHERS

*Diseases of Women, by Ten Teachers.* Edited by Drs. C. White, F. Cook and Sir William Gilliatt. (Pp. 461 + viii. With 168 figures. 25s.) London: Edward Arnold & Co. Eighth Edition. 1949.

*Contents:* 1. The Anatomy of the Female Pelvic Organs. 2. Blood Vessels, Lymphatics and Nerves of the Pelvis. 3. The Anatomy of the Pelvic Floor. 4. Development of the Female Genital Organs. 5. Malformations of the Female Genital Organs. 6. Abdominal and Vaginal Examination. 7. The Endocrine Glands and their Physiological Action. 8. Physiology of the Menstrual Function. 9. Puberty and the Menopause. 10. Amenorrhoea. 11. Excessive and Irregular Menstruation. 12. Dysmenorrhoea. 13. Backache. 14. Dyspareunia. 15. Sterility. 16. Factors Governing the Position of the Uterus. 17. Genital Prolapse. 18. Backward Displacement of the Uterus. 19. Inversion of the Uterus. 20. Displacements of the Ovary. 21. Vaginal Discharges. 22. Infections. Vulvitis. Vaginitis. 23. Infections (continued). Acute Corporal Endometritis. 24. Infections (continued). Pelvic Peritonitis. Pelvic Cellulitis. Salpingitis. 25. Infections (continued). Chronic Pelvic Peritonitis and Cellulitis. 26. Venereal Diseases: Syphilis, Gonorrhoea, Soft Chancre. 27. Tuberculosis of the Genital Tract. 28. Pruritus Vulvae. 29. Pathological Conditions of the Vulva. 30. Pathological Conditions of the Vagina. 31. Fibromyoma of the Uterus. 32. Uterine Polypi. 33. Carcinoma of the Uterus. 34. Sarcoma of the Uterus. 35. Chorionepithelioma. 36. Endometriosis. 37. Haematometra—Pyometra—Physometra. 38. Tumours of the Ovary. 39. Tumours of the Fallopian Tube. 40. Extra-Uterine Pregnancy. 41. Disorders of Micturition. 42. Neurasthenia and Neurosis in Relation to Pelvic Disorders. 43. Operations. 44. Contraception. Index.

This eighth edition of an already well-known textbook of gynaecology maintains the high standard set by its companion textbook in obstetrics.

A joint effort by 10 authors, each section has been thoroughly revised and brought up to date in accordance with recent developments in our knowledge of modern practice.

As usual, Chapter 1, dealing with the anatomy of the female generative organs, is presented with illustrations which are clear and highly instructive.

To prevent the confusion which often occurs in reading this complicated and not completely understood subject, the physiology of the endocrine glands has been thoroughly revised and has been rewritten mainly for the busy practitioner and the already harassed final-year student. The authors have certainly attained their object.

Chapters on sterility and minor gynaecological maladjustments and diseases are well worth reading, containing as they do the most recent methods in investigation and treatment. If one could offer some criticism one might add that it has been found in the treatment of *Trichomonas vaginalis* infestation that the insertion of vaginal pessaries be continued during menstruation, and that strict avoidance of coitus be advised to prevent re-infection.

It is pleasing to note that *Ten Teachers* has avoided what is common in most textbooks on gynaecology, i.e., an excessive number of gynaecological operations described in too much detail and often completely unnecessary in the curriculum of final-year medical students.

An important section on *Neurasthenia and Neurosis* in relation to pelvic disorders should be carefully considered by all medical men.

This textbook on gynaecology should be studied by all reading for their final year medicine and by busy general practitioners.

#### PRACTICAL ANATOMY

*Practical Anatomy.* Revised and rewritten by W. E. le Gros Clark, M.A., D.Sc., F.R.S., F.R.C.S. (Pp. 493 + xvi. With illustrations. 30s.) London: Edward Arnold & Co. 2nd ed. 1949.

*Contents:* 1. The Upper Extremity. 2. The Lower Extremity. 3. The Head and Neck.

Professor le Gros Clark has made many distinguished contributions to anatomy and his considerable experience as a teacher has equipped him very adequately to prepare this guide to anatomical dissection for students at medical schools.

It is interesting to recognize in this practical handbook the full effect of the modern tendency to eliminate the anatomical minutiae so dear to the heart of the anatomical teachers of a generation ago.

Modern demands on the student's time have made it imperative to diminish the amount of unnecessary morphological detail he needs to know, even if he is to be a medical practitioner.

This handbook covers the medical student's requirements adequately from the practical point of view, and the considerable improvement in the illustrations should make this a very attractive manual in addition as well.

#### CORRESPONDENCE

##### THORACIC SURGERY AND MORTALITY RATE IN SOUTH AFRICA

*To the Editor:* Mr. George Sacks in his letter dated 15 January 1950 quotes the case of 'a boy with bronchiectasis of both basal lobes, the lingula of the upper lobe on the left and beading on the upper lobe on the right', and states that 'if lobectomy eventually became necessary this could be done in Cape Town or Johannesburg at least as well as in any American clinic'.

One is well aware of the excellent thoracic surgery now being done in South Africa by experienced thoracic surgeons, but I should like Mr. Sacks to quote figures of a comparable number of cases in South Africa to show results approaching Ewart Graham's fatality rate of 5% (a figure published more than 10 years ago); Churchill has recorded 4.7% and, in Britain, Tudor Edwards' figure was less than 4%.

'Surgeon.'

Johannesburg.  
15 February 1950.

[Mr. G. Sacks comments:

1. Why will people not put their names to letters?

2. I am not a thoracic surgeon. This is why I could write the letter complained of without incurring the accusation that I was indecently interested. But I know that lobectomy is a standardized operation these days, that it has been performed many times in Johannesburg, Cape Town and Durban with low mortality rates.

3. In any case what would our modest shrinking-violet 'Surgeon' have? There are clinics abroad which can show figures for gastrectomy, thyroidectomy, mastectomy, colectomy and other major procedures more massive and more impressive than comparable figures in our own country. Does this mean that South African patients must be shipped across to them?

4. Let us stick to the facts. A young patient was sent off to the United States with money collected through the medium of a newspaper which showed so little sense of responsibility that it never bothered to ask a single medical practitioner to express an opinion upon the advisability of so doing. The whole business was carried through on the urging of a layman.

As a footnote to this it may be mentioned that thoracic surgeons who have seen the patient in America have completely endorsed the views expressed by those who saw him in Cape Town. This information was given unobtrusively on the back pages of the newspaper which had blazoned forth news items and pictures on its front page about the case.

5. In view of the above why, then, must I involve myself in idiotic controversy over 'fatality' (sic) rates which can have no possible relevance to the matter at issue?

—Editor].

##### THE TRANSVAAL ASSOCIATION FOR THE CARE OF CEREBRAL PALSY (SPASTICS): FOREST TOWN SCHOOL

*To the Editor:* As you know, this school has been in existence for only a year, and we require the support of the medical profession so that we may locate and help, if possible, cerebral palsied children here.

We would like to call to your attention the fact that the Transvaal Association for the Care of Cerebral Palsy (Spastics) has organized and is maintaining a day school for children handicapped by cerebral palsy.

As you probably know, there have been practically no facilities in the Union for re-educating the cerebral palsied child. The Association has secured the loan of the old Forest Town Government School, and now maintains a staff of one teacher, one nursery school teacher, two part-time physiotherapists, and one principal-logopedician, to care for the eighteen children enrolled. There is also an honorary paediatrician and an honorary panel of specialists, such as neurologists, orthopedic surgeons, etc., who assist in diagnosing and planning treatment.

The general plan of re-education follows closely that advocated by Dr. Phelps, Mrs. Collis and other leading personalities in the field of cerebral palsy. Each child receives individual physical exercises each day, and speech re-education twice a week. In addition, the school programme provides special games, songs and handwork. The children are taken to swimming classes once a week, and simplified dancing lessons are given weekly.

The Association has aimed at the all-round re-education of these children in so far as its limited financial position will allow. We have not to date employed an occupational therapist, but trust to do so in the near future. The nursery school accepts children from the age of two years, and we would strongly suggest that parents bring their children as early as a diagnosis has been made, so that the parents may be instructed in carrying on the exercises at home previous to enrolment. There is an age limit of 21 years.

We have applied to the Province for financial assistance, and we feel that this is being very favourably considered. At the present time, however, the school is being run at a loss, as the fees of £10 per term (four terms per year) do not by any means cover the enormous expense of staffing and equipping such a school. We are dependent upon the efforts of parents and interested persons in providing financial assistance through fêtes, jumble sales, etc.

From the above you will realise that the Association is a non-profit-making organisation, and has as its aim the assistance of any cerebral palsied child, regardless of whether the parents can afford the very nominal fees or not. We endeavour to provide some transportation for the children who could not otherwise attend, but on the whole the parents must make the effort to bring the children to the school. It is hoped that a small hostel will be provided within the next year or so.

If there are any parents of cerebral palsied children who would be interested in having their child attend this school, we would appreciate your notifying them of our address at Rannoch Road, Forest Town, and telephone number 41-2666.

Elaine S. Clemons,  
Principal.

Forest Town School,  
Rannoch Rd.,  
Forest Town,  
Johannesburg.  
15 February 1950.